INSTANT GRAPHICS! 12 CHEAP, EASY PACKAGES, 8 LOW-COST SCANNERS

MMX! NEW WAY TO TURBOCHARGE APPS

PC WORLD

JANUARY 1997

WIN 95, NT 4.0

...OR WIN 97?

Which WINDOWS when and where?

PLUS

Great Ways to Manage Your Money: Top Web Sites, Software, and Tips

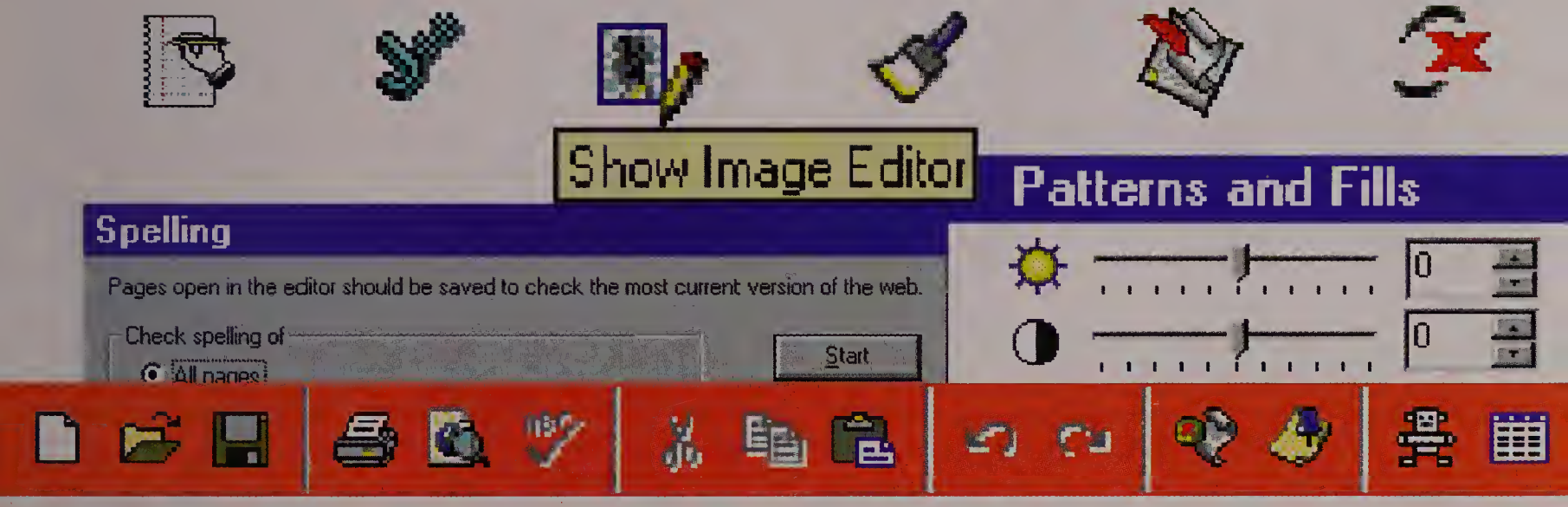
Sneak Preview! All-New Netscape Navigator and Internet Explorer

PC World Top 100 Best Buy PCs and More!

$5.95 • PRINTED IN USA

0 70992 37771 8 01

(Even if you don't
what the



©1996 Microsoft Corporation. All rights reserved. Microsoft and Where do you want to go today? are registered trademarks and ActiveX, FrontPage and WebBot are trademarks of Microsoft Corporation. Java is a trademark of Sun Microsystems, Inc. Other product and company names mentioned herein may be the trademarks of their respective owners.

know
hell you're doing.)

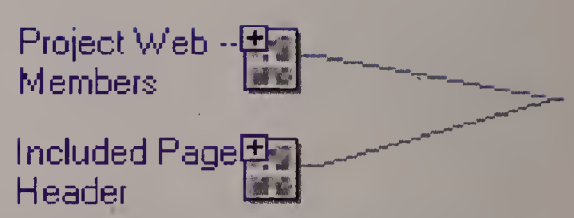
Maybe you're not ready to wrassle computer gibberish to the ground and make it cry uncle. (Or<B>Uncle!</B>, as it more likely would say.) That's okay—the new Microsoft® FrontPage™ 97 Web authoring and management tool has everything any Webmaster needs, and it lets you skip right to the fun stuff. For starters, you can use Web wizards to begin building your site. Create instant hyperlinks. Without a whit of programming know-how, call on WebBot™ components to add interactive features. Spell check across your entire site, instead of page by laborious page. And check out that Bonus Pack: Microsoft Internet Explorer 3.0, Microsoft Personal Web Server and Microsoft Image Composer (a program packed with tools and free art). Want an even more dynamic site? Insert Java™ applets, Netscape plug-ins or ActiveX™ controls. You can even get in there and fiddle with the HTML code. And if there's an intranet in your future, the fact that Microsoft Office documents can be used as Web pages will help it right along. It's all doable, and you get to make co-workers call you "O Webmaster." Interest piqued? Visit us online to find out more.

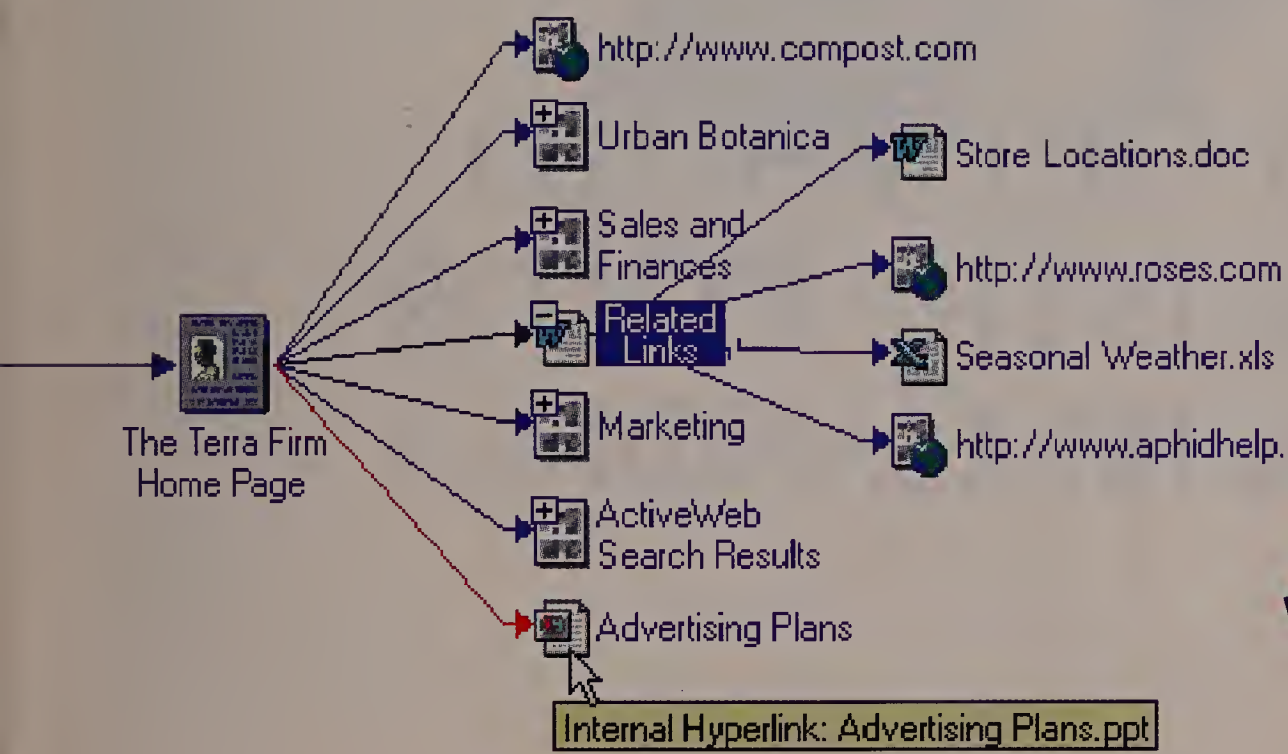
Microsoft®

Where do you want to go today?® www.microsoft.com/frontpage/

New Microsoft FrontPage 97

lets you create and manage a really professional-looking Web site.




http://www.compost.com
Urban Botanica
Store Locations.doc
Sales and Finances
http://www.roses.com
Related Links
Seasonal Weather.xls
Marketing
http://www.aphidhelp.
The Terra Firm Home Page
ActiveWeb Search Results
Advertising Plans
Internal Hyperlink: Advertising Plans.ppt

Microsoft
Microsoft FrontPage 97
Web Authoring and Management Tool
with Bonus Pack

HERE'S ONE WAY

TO GET PHOTO REALISTIC COLOR FROM CANON.

HERE'S ANOTHER.

Photo-realistic color has always been a focus for us at Canon.® Which explains why our latest development in Bubble Jet™ printing is photo-realistic color that's simply incredible. And why, with just a point-and-click, our new Canon Creative 2 software makes it incredibly simple to create everything from greeting cards, to brochures, to T-shirt transfers. For more information about our new line of Color Bubble Jet printers, call 1-800-848-4123, Extension 444. Or visit our web site at http://www.ccsi.canon.com. You'll find our printers nothing less than simply incredible and incredibly simple.

Canon

©1996 Canon Computer Systems, Inc. Canon is a registered trademark and Bubble Jet is a trademark of Canon Inc. CCSI, 2995 Redhill Ave., Costa Mesa, CA 92626. In Canada, call 1-800-263-1121, Extension 444.

PC WORLD

JANUARY

VOLUME 15 ◆ NUMBER 1 ◆ MULTIMEDIA EDITION

COVER STORY

122 **WAR OF THE WINDOWS: NT 4.0 VERSUS 95**

REVIEW Wondering which Windows works best? *PC World* tested both Windows 95 and NT Workstation 4.0 with 13 PC configurations and more than 60 hardware and software products, for an in-depth look at compatibility and performance. So which Windows should you put on your PC? Here's the bottom line. Plus a peek at Windows 97.

FEATURES

134 **BEST WAYS TO MANAGE YOUR MONEY**

HOW TO Putting your personal finances on your PC can be like money in the bank. These tips, strategies, products, and Web sites can help you manage your finances electronically.

159 **GRAPHICS!**

REVIEW Need graphics to liven up a business presentation or home project? No problem. We review 12 easy-to-use packages, from cool creative tools to business graphics—most under $150.

175 **SCANNERS FOR THE REST OF US**

REVIEW Whether it's for sprucing up a Web page or a presentation, desktop scanners claim to be simple and improved. We test eight models priced below $500.

SPECIAL REPORT

THE WEB AND YOUR BUSINESS

107 **HP TAKES IT ALL**

Servers from Hewlett-Packard top the Workgroup and Enterprise Server charts. Plus the latest in intranet software, including OpenMind and AltaVista Forum.

122

236-M3

Additional material available on PC World Online

MULTIMEDIA

236-M3 **3-D CHAT WORLDS**

We mixed and mingled at six online chat sites and found that, like offline social gatherings, they run the gamut from too alienating to too much.

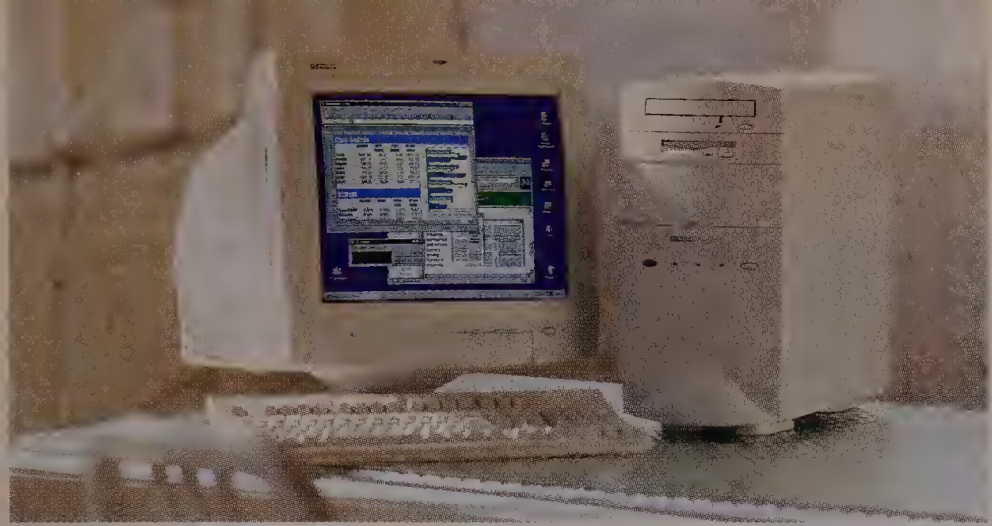
236-M9 **TITLE REVIEWS**

This month: MechWarrior 2: Mercenaries, Clandestiny, and much more.

236-M12 **HARDWARE REVIEWS**

Top CD-ROM drives and sound boards.

COVER *Digital Composition by Nick Fain*



189

TOP OF THE NEWS

50 TURBOCHARGE YOUR SOFTWARE
Intel's new MMX Pentiums will dramatically speed multimedia. But will software makers jump on the MMX bandwagon?

53 NAVIGATOR AND INTERNET EXPLORER TAKE DIFFERENT APPROACHES
Netscape expands to e-mail and more; Explorer takes over desktops.

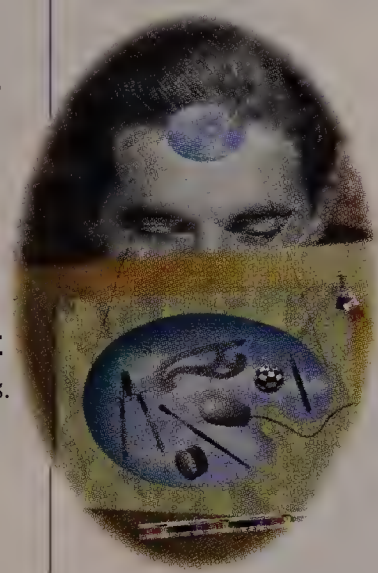
54 Rx FOR YOUR PC
Get updates and fixes via the Web.

55 MAGNARAM 97 SAVES A BIT OF TIME
Opens Win 95 apps faster on 16MB+ PCs.

56 ROAD TROUBLES: NOTEBOOKS
Bad batteries and more: problems grow.

58 INTERNET FOR THE JET SET?
Cell phones with e-mail, fax, Net access.

62 DVD: DEFINITELY VERY DELAYED
The ETA? Still a month or two away.



159

NEW PRODUCTS

82 IBM Aptiva S66 home PC
83 HP LaserJet 5Si Mopier
84 Toshiba Satellite, Portégé, and Tecra notebook lines
84 IBM ThinkPad 365 and 760 notebooks
86 Adobe Persuasion 4.0
86 Quarterdeck's Procomm Plus
90 DecideRight 1.2, SureFire
90 Microsoft Team Manager 97
92 Cirque Input Center
92 ViewSonic P815 monitor
94 ProZip
94 Uninstaller 4
96 Business Maestro
96 Big Business 2.0 for Windows
100 Bryce 2 for Windows 95/NT, Detailer 1.0 3-D landscape graphics
100 CorelDraw 7
102 Compass 3800
102 PointCast Network 1.1
104 Internet audio packages
104 HTML Transit 2.0

175

TOP 100

189 HOME PCS MEAN BUSINESS
TOP 100 Sleek PCs with business-size power are being sold to home users, including HP's Pavilion, Packard-Bell's Platinum, Sony's Vaio PC, and Toshiba's Infinia. But be prepared to shell out extra bucks for a cool case and multimedia bells and whistles.

192 POWER DESKTOPS
TOP 20 Pentium-200s and Pentium Pro-200s from Acma, Dell, HP, and Quantex add to a bumper crop of 200-MHz PCs.

204 BUDGET DESKTOPS
TOP 20 P-133s dominate the Budget chart, but faster PCs like a Pentium Pro-180 from Gateway and Cyrix-based P-166+s from Alaris and Netis are priced to move.

212 NOTEBOOKS
TOP 20 Gateway's awesome Solo 2100 P-133 is the only new notebook to break into the charts this month.

219 WIN A PENTIUM-133 PC
CONSUMER FEEDBACK How satisfied are you with your PC? Fax in this survey for a chance to win a DTK Quin-55M/P133, a P-133 PC from this month's Top 20 charts.

221 WORKGROUP PRINTERS
TOP 10 IBM's new Network Printer 12 challenges Lexmark's two top monochrome printers, while the Tektronix Phaser 350 color model just misses number one.

225 17-INCH MONITORS
TOP 10 Near-perfect graphics and sharp text help the $829 Iiyama Vision Master Pro 17 return to number one.

227 GRAPHICS BOARDS
TOP 10 This month's top board, ATI's 3D Xpression+ PC2TV, can turn your TV into a PC monitor—and carries an impressive 4MB of memory, for under $200.

229 MODEMS
TOP 10 U.S. Robotics Courier V.Everything 33.6 and Hayes Optima 28.8 finish as the two best external modems. The Megahertz XJ4288 is the top PC Card. ▶

HERE'S HOW

238 **REAL PROBLEM, REAL SOLUTION**
How to turn queries at your Web site into serious sales leads.

240 **ANSWER LINE**
Batch files for dummies, missing megabytes.

246 **WINDOWS TIPS**
Speed up PostScript, add your colors to Schedule+.

250 **WORD PROCESSING TIPS**
Center text vertically, stop autopilot.

253 **SPREADSHEET TIPS**
Generate random numbers in Excel, find Excel models on the Web.

254 **DATABASE TIPS**
Create push-button menus in Microsoft Access.

256 **INTERNET TIPS**
Avoid e-mail forgery, make home pages accessible.

260 **HARDWARE TIPS**
Speeding dial-up modems, jacking up your 486.

262 **MULTIMEDIA TIPS**
Audio on the Internet, spinning video CDs.

264 **UPGRADE GUIDE**
Installing a new graphics board the right way, step by step.

264

21

@HOME

231 **@HOME PRODUCTS**
Print at your own personal Kinko's, hang out in the Neverhood, and get AM/FM on your PC.

232 **KEEPING UP**
Web sites and services for consumers.

234 **TOP 5 HOME PCS**
Sony and Toshiba's cool new home PCs miss the Top 5, but make it interesting.

236 **HOME OFFICE**
ISDN hell: Are you being overcharged?

231

DEPARTMENTS

15 **UP FRONT** What's up for Windows in 1997?

21 **LETTERS** Readers rate our upgrade advice.

29 **CONSUMER WATCH** How is Micron trying to improve customer service?

41 **PCW ADVOCATE** Catching Tiger by its tail, Fine Print finds limits to on-site warranty.

45 **BUGS AND FIXES** Navigator and Explorer upgrades, NT 4.0 patch.

302 **FULL DISCLOSURE** In the deep dark heart of Win 95.

RESOURCES

12 **HOW TO CONTACT PC WORLD**

30 **COMING UP**

265 **MAIL-ORDER SHOPPING GUIDE**

282 **PC WORLD CATALOG**

293 **READER SERVICE CARD**

295 **ADVERTISER INDEX**

297 **EDITORIAL PRODUCT INDEX**

PCW ONLINE

YOU'RE HIRED!

ONLINE EXCLUSIVE There are more job listings on the Web than in your newspaper; and if you know what to do, you may land your dream job. Download a free HTML résumé template and take a multimedia tour of important sites. **http://www.pcworld.com/jobs.**

COMPUTER TV SHOWS: READY FOR PRIME TIME?

REVIEW Can't get enough of computers or the Web? There are dozens of computer shows on television—some bad, others fairly decent. We pick the best and worst for content and presentation.

EVERY MONTH ON PC WORLD ONLINE

http://www.pcworld.com

- The latest news and daily audio reports on hardware, software, and technology.
- The Interactive Buying Guide to help you find the PC that meets your needs.
- The Web's most comprehensive how-to database for tips and shortcuts.
- The new PC World Annex, with games, reviews, columns, the latest industry gossip, a calendar of computing events, interactive interviews, and job listings. ■

WRAP UP YOUR HOLIDAY SHOPPING...

Now! it's a whole lot easier for you to get the perfect gift. Introducing the new **Computers Now!**® program from Micron Electronics™. Through our Computers Now! program, you can choose a computer from among our most popular—and affordable—desktop systems, and we'll dash it away to you or those on your holiday shopping list. So call now and spread some cheer by ordering either a preconfigured **Home MPC**™ or **Millennia**™ system through Computers Now! Best of all, your holiday purchases are backed by our industry-leading Micron Power warranty.

Home MPC™

- 512KB pipeline burst cache, flash BIOS
- 2.5GB EIDE hard drive
- 12X EIDE CD-ROM drive, 3.5" floppy drive
- 16-bit 3D Wavetable stereo sound card
- Advent™ AV270 2x25 watt stereo speakers
- 28.8 fax/modem, speakerphone, voice mail
- Microsoft® Phone telephony software
- Internet ready
  Internet in a Box from CompuServe®/Spry™
  Microsoft Internet Explorer™ 3.0
- Prodigy®, America Online® & CompuServe trial memberships
- PCI 64-bit 3D video, MPEG, 2MB EDO RAM
- *Tool-free* mini-tower or desktop
- Microsoft Mouse, 104-key keyboard
- Microsoft Windows® 95 CD & MS® Plus! CD
- Quicken® Financial Pak includes:
  Quicken Deluxe 5.0; Quicken Financial Planner™; Quicken Parents' Guide to Money™; and Quicken Family Lawyer™
- Micron Family Pak includes: ABC by Dr. Seuss; Thinkin' Things™ Collection 1; Earthworm Jim™; and Mechwarrior® 2
- Microsoft Home Pak includes: Monster Truck Madness; Works 4.0; Publisher Deluxe; Encyclopedia Encarta®; CD Sampler; plus more!
- 5-year/3-year Micron Power℠ warranty

P133

$2,157

- Intel 133MHz Pentium® processor
- **16MB EDO RAM**
- 15" Micron 15FGx, .28dp (13.7" display)

P200

$2,899

- Intel 200MHz Pentium® processor
- **32MB EDO RAM**
- 17" Micron 17FGx, .26dp (15.8" display)
- Microsoft Office Pro 95 & Bookshelf® 95 CD

HP Printer Options

NEW

- HP DeskJet 680c printer—low-cost color printing for the home, complete with cable $319
- HP DeskJet 870Cxi printer—fast color printing for the office, complete with cable $519
- HP LaserJet 5L-FS printer—affordable B&W printing, complete with cable $499

Millennia™ P200

- Intel 200MHz Pentium® processor
- 512KB pipeline burst cache, flash BIOS
- **32MB EDO RAM**
- 2.5GB EIDE hard drive
- 12X EIDE CD-ROM drive, 3.5" floppy drive
- 16-bit stereo sound & speakers
- 33.6 internal data fax/modem
- Internet ready
  Internet in a Box from CompuServe/Spry
  Microsoft Internet Explorer 3.0
- Prodigy, America Online & CompuServe trial memberships
- **PCI 64-bit 3D video, MPEG, 4MB EDO RAM**
- 15" Micron 15FGx, .28dp (13.7" display)
- *Tool-free* mini-tower or desktop
- Microsoft Mouse, 104-key keyboard
- Microsoft Windows 95 CD & MS Plus! CD
- Microsoft Office Pro 95 & Bookshelf 95 CD
- 5-year/3-year Micron Power warranty

$2,438

Designed for Microsoft® Windows® 95

PC WORLD December 1996

Looking to get your new computer now? Try Computers Now! from Micron.

intel inside pentium PROCESSOR

Micron Power Warranty & Support

- 5-year limited warranty on microprocessor and main memory
- 3-year limited parts-only system warranty
- 1-, 2- or 3-year optional on-site service agreement for Micron desktop systems
- 30 days of free Micron-supplied software support for Micron desktop systems
- 30-day money-back policy
- 24-hour technical support

The foregoing is subject to and qualified by Micron's standard limited warranties and terms and conditions of sale. Terms and conditions of sale may vary for specific configurations. Copies of the limited warranties may be obtained from our Web site or by calling Micron.

900 E. Karcher Road, Nampa, ID 83687 • Mon-Fri 6am-10pm Sat 7am-5pm (MT) • International Sales Hours: Mon-Fri 6am-7pm (MT) • Phone: 208-893-3434 • Fax: 208-893-3424 • Purchase Order Fax: 208-893-8992 • Technical Support Available 24 Hours A Day–7 Days A Week • Technical Support Phone: 888-FIX-MYPC
Technical Support E-mail: techsupport.mei@micron.com

©1996 Micron Electronics, Inc. All rights reserved. Micron Electronics is not responsible for omissions and/or errors in typography or photography. All purchases are subject to availability. Prices and specifications may be changed without notice; prices do not include shipping and handling. 30-day money-back policy does not include return freight and original shipping/handling charges; applies only to Micron brand products and begins from date of shipment. All sales are subject to Micron Electronics' current terms and conditions of sale. Lease prices based on 36-month lease. Intel, Intel Inside and Pentium are registered trademarks of the Intel Corporation. Microsoft, Windows, Windows NT and the Windows logo are registered trademarks of Microsoft Corporation. All other service marks, trademarks and registered trademarks are the property of their respective companies.
CN #701PCWD

MICRON™ ELECTRONICS, INC.

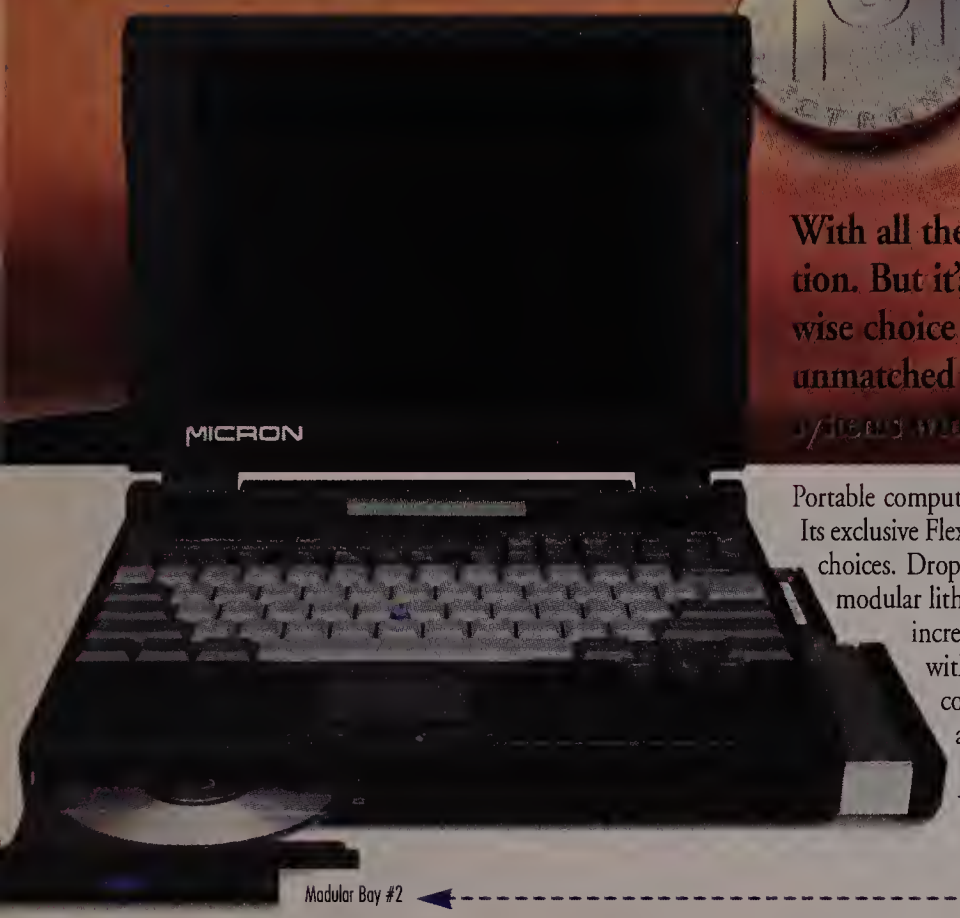
800-776-4506

http://www.mei.micron.com

Circle 149 on reader service card

BE CAREFUL HOW YOU CHOOSE YOUR NEXT PC.

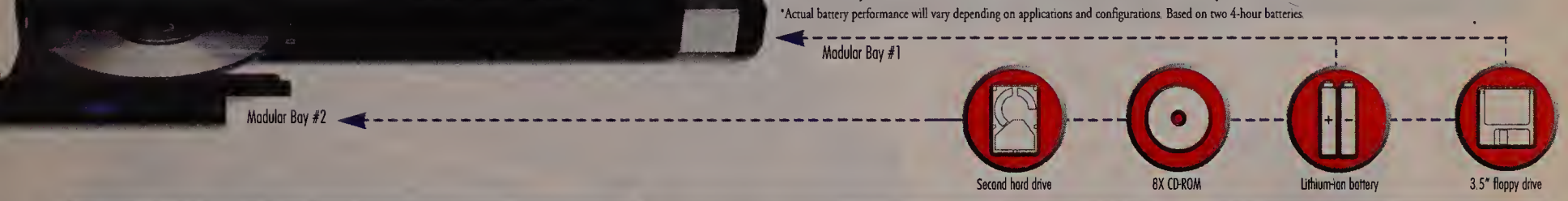
WHY TAKE A CHANCE? CHOOSE WISELY.



With all the computers to choose from, we can understand your frustration. But it's not really a toss-up. The PCs from Micron Electronics make a wise choice with award-winning performance, outstanding service and unmatched reliability. To make the choice even easier, we back all of our systems with the industry-leading Micron Power℠ warranty.

Portable computing is a breeze with the **Millennia TransPort™** notebook system from Micron Electronics™. Its exclusive FlexOpt™ dual-bay modular design frees you to mix and match devices for a variety of customized choices. Drop in a modular CD-ROM drive to enhance multimedia capability. Add a second intelligent modular lithium-ion battery for up to eight hours' use without recharging*, or add a 2.1GB hard drive to increase your storage capacity. There's built-in flexibility, too—an innovative Pick-a-Point™ system with touchpad or pointing-stick operation and an infrared port for walkup, wireless printing to compatible printers. And don't forget our industry leading Micron Power warranty. Call Micron and order your own Millennia TransPort™ notebook system.

*Actual battery performance will vary depending on applications and configurations. Based on two 4-hour batteries.



Millennia TransPort™

Standard Features

- Mobile Intel Pentium® processor
- Intel 430MX PCI chipset
- 256KB L2 pipeline burst cache
- 8X modular CD-ROM drive
- PCI graphics accelerator, 1MB EDO RAM
- Pick-a-Point™ dual pointing devices integrate both pointing stick and touchpad
- Removable EIDE hard drive
- 3.5" modular floppy drive
- Intelligent modular lithium-ion battery
- 16-bit stereo sound
- Built-in stereo speakers and microphone
- 2 Type II or one Type III PCMCIA slots
- S-video and NTSC-video outputs
- Headphone, microphone and line-in jacks
- 2 infrared ports, one front, one back
- Parallel, serial, VGA and 2 PS/2 ports
- Dimensions: 11.7" x 9.4" x 2.0", 6.9 lbs.†
- Nylon carrying case
- Microsoft® Windows® 95 and MS® Plus! CD
- Microsoft Office Pro 95 and Bookshelf® 95 CDs
- Kensington™ security lock ready‡
- 5-year/3-year Micron Power℠ warranty

- 133MHz mobile Intel Pentium processor
- 32MB EDO RAM (48MB max.)
- 12.1" active matrix calar display, 800 x 600
- 1.3GB removable hard drive

$4,099
Business lease $139/mo.

- 133MHz mobile Intel Pentium processar
- 32MB EDO RAM (48MB max.)
- Matarala® Mantana 33.6 fax/madem
- 12.1" active matrix color display, 800 x 600
- 2.1GB removable hard drive
- 2nd lithium-ian battery

$4,599
Business lease $156/mo.

Options

- With 16MB DIMM module upgrade(total 48MB). add $349
- With primary 2.1GB hard drive upgrade ..... add $100
- With 2nd removable hard drive (1.3GB) ..... add $599
- With 2nd removable hard drive (2.1GB) ..... add $699
- With 3Com® ethernet 10BT PCMCIA ..... add $149
- With Matarala Mantana 33.6 fax/modem .... add $259
- With MicranDock™ multimedia part replicator ... add $299
- With MicranExec™ desktop package ..... add $799
- With car adapter ..... add $89

† 6.9 lbs. includes 3.5" floppy and one battery
‡ Lock secures both Millennia TransPort and MicronDock

PC WORLD December 1996

Designed for Microsoft® Windows® 95

MICRON™ ELECTRONICS, INC.

intel inside pentium PROCESSOR

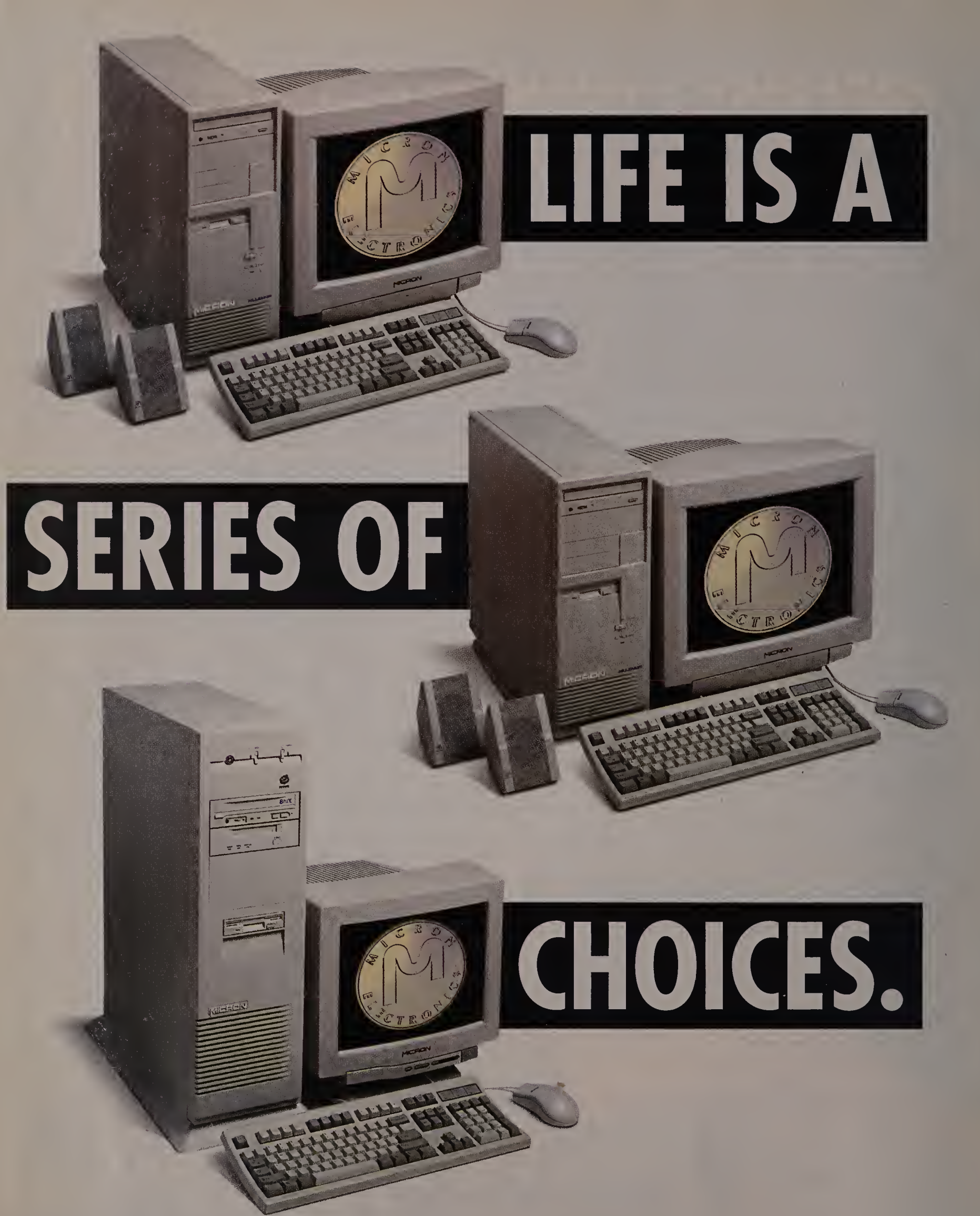
800-245-3709
http://www.mei.micron.com

Micron Power Warranty & Support

- 5-year limited warranty on microprocessor and main memory
- 3-year limited parts-only system warranty
- 1-, 2- or 3-year optional on-site service agreement for Micron desktop and server systems
- 30 days of free Micron-supplied software support for Micron desktop systems; 3 optional network operating system incident resolution, included for Micron server systems
- 30-day money-back policy
- 24-hour technical support

The foregoing is subject to and qualified by Micron's standard limited warrantiee and terms and conditions of sale. Terms and conditions of sale my vary for specific configurations. Copies of the limited warranties may be obtained on our Web site or by calling Micron.

Circle 149 on reader service card



Some are just easier than others.

SUPERIOR DESKTOP SOLUTIONS:

Millennia™ P200

- Intel 200MHz Pentium® processor
- 512KB pipeline burst cache, flash BIOS
- 12X EIDE CD-ROM drive, 3.5" floppy drive
- 16 bit stereo sound & speakers
- **PCI 64-bit 3D video, MPEG, 4MB EDO RAM**
- *Tool-free* minitower or desktop
- Microsoft® Mouse, 104-key keyboard
- Microsoft Windows® 95 & MS® Plus! CD
- 5-year/3-year Micron Power℠ warranty

- **16MB EDO RAM** • 1.6GB EIDE hard drive • 15" Micron 15FGx, .28dp (13.7" display) • Microsoft Works 95 CD — **$1,999** Bus. lease $68/mo.
- **32MB EDO RAM** • 2.5GB EIDE hard drive • 15" Micron 15FGx, .28dp (13.7" display) • Microsoft Office Pro 95 & Bookshelf® 95 CDs — **$2,299** Bus. lease $78/mo.
- **64MB EDO RAM** • 3.1GB EIDE hard drive • 17" Micron 17FGx, .26dp (15.8" display) • Microsoft Office Pro 95 & Bookshelf 95 CDs — **$2,899** Bus. lease $99/mo.

With Intel 133MHz Pentium processor ..... subtract $300 With Intel 166MHz Pentium processor ..... subtract $100

Millennia™ P200 Plus

- Intel 200MHz Pentium processor
- 512KB pipeline burst cache, flash BIOS
- PCI 32-bit Ultra SCSI Fast-20 controller
- 12X SCSI CD-ROM drive, 3.5" floppy drive
- 16 bit stereo sound & speakers
- **PCI 64-bit 3D video, MPEG, 4MB EDO RAM**
- *Tool-free* minitower or desktop
- Microsoft Mouse, 104-key keyboard
- Microsoft Windows 95 & MS Plus! CD
- 5-year/3-year Micron Power warranty

- **16MB EDO RAM** • 2GB Ultra SCSI hard drive • 15" Micron 15FGx, .28dp (13.7" display) • Microsoft Works 95 CD — **$2,699** Bus. lease $92/mo.
- **32MB EDO RAM** • 4GB Ultra SCSI hard drive • 15" Micron 15FGx, .28dp (13.7" display) • Microsoft Office Pro 95 & Bookshelf 95 CDs — **$3,199** Bus. lease $109/mo.
- **64MB EDO RAM** • 9GB Fast SCSI-2 hard drive • 17" Micron 17FGx, .26dp (15.8" display) • Microsoft Office Pro 95 & Bookshelf 95 CDs — **$4,799** Bus. lease $163/mo.

• With Intel 166MHz Pentium processor ..... subtract $100

HIGH-PERFORMANCE SOLUTIONS:

Millennia™ Pro2 180

- Intel 180MHz Pentium® Pro processor
- Supports dual Intel 180MHz Pentium Pro processors
- 256KB internal cache, flash BIOS
- 12X EIDE CD-ROM drive, 3.5" flappy drive
- 16 bit stereo sound & speakers
- **PCI 64-bit 3D video, MPEG, 4MB EDO RAM**
- *Tool-free* minitower or desktop
- Microsoft® Mouse, 104-key keyboard
- Microsoft Windows® 95 & MS® Plus! CD
- 5-year/3-year Micron Power℠ warranty

- **16MB EDO RAM** • 2.5GB EIDE hard drive • 15" Micron 15FGx, .28dp (13.7" display) • Microsoft Works 95 CD — **$2,199** Bus. lease $75/mo.
- **32MB EDO RAM** • 3.1GB EIDE hard drive • 17" Micron 17FGx, .26dp (15.8" display) • Microsoft Office Pro 95 & Bookshelf® 95 CDs — **$2,699** Bus. lease $92/mo.

With 2nd Intel 180MHz Pentium Pro processor ..... add $599*
With Microsoft Windows NT Workstation 4.0 CD ..... add $99
*Second processor requires Microsoft Windows NT Workstation 4.0

Millennia™ Pro2 360 Plus

- **Dual Intel 180MHz Pentium Pro processors**
- 256KB internal cache, flash BIOS
- PCI 32-bit Ultra SCSI Fast-20 controller
- 12X SCSI CD-ROM drive, 3.5" flappy drive
- 16 bit stereo sound & speakers
- **PCI 64-bit 3D video, MPEG, 4MB EDO RAM**
- *Tool-free* minitower or desktop
- Microsoft Mouse, 104-key keyboard
- Microsoft Windows NT Workstation 4.0 CD
- Microsoft Office Pro 95 & Bookshelf 95 CDs
- 5-year/3-year Micron Power warranty

- **32MB EDO RAM** • 2GB Ultra SCSI hard drive • 15" Micron 15FGx, .28dp (13.7" display) — **$3,699** Bus. lease $126/mo.
- **64MB EDO RAM** • 4GB Ultra SCSI hard drive • 17" Micron 17FGx, .26dp (15.8" display) — **$4,549** Bus. lease $155/mo.
- **128MB EDO RAM** • 9GB Fast SCSI-2 hard drive • 21" Micron 21FGx, .26dp (20.0" display) — **$6,799** Bus. lease $214/mo.

SERVER SOLUTIONS:

Vetix™ EL 1000N

- Intel 200MHz Pentium® Pro processor
- 256KB L2 cache, flash BIOS
- Dual Pentium Pro ZIF sockets
- 32MB ECC EDO RAM upgradable to 512MB
- 2GB Ultra SCSI hard drive
- Slots: 1 ISA, 3 PCI, 1 shared PCI/ISA
- Adaptec PCI 32-bit Ultra SCSI Fast-20 controller
- 12X SCSI-2 CD-ROM drive
- 3.5" flappy drive
- 64-bit 1MB ISA video
- 3Com® 3C595 Fast EtherLink® PCI 10/100 ethernet NIC (RJ-45)
- Full-size tower with 10 drive bays
- 15" Micron 15FGx, .28dp (13.7" display)
- Microsoft® Mouse, 104-key keyboard
- Novell® NetWare® 4.X (5 user license)
- NOS support (3 resolutions)
- 5-year/3-year Micron Power℠ warranty

$4,499* Bus. lease $153/mo.

*Vetix EL 1000 and 2000 models available with Microsoft Windows NT Server. Please call for current pricing.

Vetix™ EL 2000N

- Dual Intel 200MHz Pentium Pro processors
- 256KB L2 cache, flash BIOS
- 64MB ECC EDO RAM upgradable to 512MB
- 4GB Ultra SCSI hard drive
- Slots: 1 ISA, 3 PCI, 1 shared PCI/ISA
- Adaptec PCI 32-bit Ultra SCSI Fast-20 controller
- 12X SCSI-2 CD-ROM drive
- 3.5" flappy drive
- 64-bit 1MB ISA video
- 3Com 3C595 Fast EtherLink PCI 10/100 ethernet NIC (RJ-45)
- Full-size tower with 10 drive bays
- 15" Micron 15FGx, .28dp (13.7" display)
- Microsoft Mouse, 104-key keyboard
- Novell NetWare 4.X (5 user license)
- NOS support (3 resolutions)
- 5-year/3-year Micron Power warranty

$5,799* Bus. lease $182/mo.

*Vetix EL 1000 and 2000 models available with Microsoft Windows NT Server. Please call for current pricing.

900 E. Karcher Road, Nampa, ID 83687 • Mon-Fri 6am-10pm Sat 7am-5pm (MT) • International Sales Hours: Mon-Fri 6am-7pm (MT) • Phone: 208-893-3434 • Fax: 208-893-3424 • Purchase Order Fax: 208-893-8992 • Technical Support Available 24 Hours A Day–7 Days A Week: Technical Support Phone: 888-FIX-MYPC • Technical Support E-mail: techsupport.mei@micron.com

Tollfree from Canada 800-708-1758 | Tollfree from Puerto Rico 800-708-1756 | International Sales 208-893-8970 | International Fax 208-893-7393 | Tollfree from Mexico 95-800-708-1755

©1996 Micron Electronics, Inc. All rights reserved. Micron Electronics is not responsible for omissions and/or errors in typography or photography. All purchases are subject to availability. Prices and specifications may be changed without notice, prices do not include shipping and handling. 30-day money-back policy does not include return freight and original shipping/handling charges, applies only to Micron brand products and begins from date of shipment. All sales are subject to Micron Electronics' current terms and conditions of sale. Lease prices based on 36-month lease. Intel, Intel Inside and Pentium are registered trademarks of the Intel Corporation, Microsoft, Windows, Windows NT and the Windows logo are registered trademarks of Microsoft Corporation. All other service marks, trademarks and registered trademarks are the property of their respective companies. PCWD- MIL/MILPRO/VETIX/TRANS-9701

Circle 149 on reader service card

MICRON™ ELECTRONICS, INC.

800-245-3709

http://www.mei.micron.com

PC WORLD

EDITORIAL

EDITORIAL DIRECTOR Philip Lemmons

EDITOR IN CHIEF Cathryn Baskin

EDITOR IN CHIEF, PC WORLD ONLINE Russell Glitman

MANAGING EDITOR Luis Camus

ART DIRECTOR Robert Kanes

EXECUTIVE EDITORS Eric Bender, Tracey Capen, Daniel Tynan

SENIOR NEWS EDITOR Michael Desmond
SENIOR ONLINE EDITOR Yael Li-Ron
SENIOR REVIEWS EDITOR Carla Thornton
SENIOR TECHNICAL EDITOR Karl Koessel
SENIOR @HOME EDITOR Christina Wood
EAST COAST EDITOR Randy Ross

ASSISTANT MANAGING EDITOR Anne Kandra

SENIOR ASSOCIATE EDITORS Rex Farrance, Bryan Hastings, Ann Kremers, Michael S. Lasky, Harry McCracken, Lincoln Spector

ASSOCIATE EDITORS Brad Grimes, Laurianne McLaughlin, Melissa Riofrio
ONLINE EDITOR, INTERACTIVE SERVICES Dennis Sheridan
TECHNICAL EDITOR Shane Rau
STAFF EDITORS John Goddard, Eric Hellweg
NEW MEDIA EDITOR Tracy Swedlow
ONLINE STAFF EDITOR Samantha Parent
ASSISTANT EDITORS Allyson Bates, Angela Freeman, Aoife M. McEvoy
EDITORIAL RESEARCHER Julie Campagna

COPY CHIEF Richard Johnson
SENIOR COPY EDITORS Barbara Lewis, Marla Miyashiro
COPY EDITORS Stephen Compton, Kim Saccio-Kent, Hon Walker

EDITORIAL PRODUCTION ASSOCIATE Henry Pham
ASSISTANT TO EDITORIAL DIRECTOR Linda L. Grubbs
ADMINISTRATIVE ASSISTANT Heidi AZ Wolff
BUSINESS MANAGER Heidi Anderson
FLUEGELMAN INTERN Glenn McDonald

FOUNDER David Bunnell
FOUNDING EDITOR Andrew Fluegelman

ART AND DESIGN

ASSOCIATE ART DIRECTORS Barbara Adamson, Greg Silva
SENIOR DESIGNERS Kate Godfrey, Carolyn Perot
SENIOR DESIGNER, INFOGRAPHICS Sandra Kelch
ASSISTANT DESIGNER, INFOGRAPHICS Robin Briskin
PRODUCTION ARTIST Marlene Tobias

MULTIMEDIA EDITION

SENIOR ASSOCIATE EDITOR Kimberly Stein
ART DIRECTOR Adrian Morgan
COPY EDITOR Steven Gray

CONTRIBUTING EDITORS

Steve Bass, George Campbell, Scott Dunn, Bronwyn Fryer, Roberta Furger, Judy Heim, Richard Jantz, Stephen Manes, James A. Martin, Brian McWilliams, Stan Miastkowski, Celeste Robinson, Richard Scoville, Scott Spanbauer, Kirk Steers

PC WORLD TEST CENTER

TEST CENTER DIRECTOR Julian Milenbach
MANAGER, PERFORMANCE TESTING Ulrike Diehlmann
MANAGER, USABILITY TESTING Susan Silvius
PERFORMANCE ANALYSTS Jeffrey Kuta, Kevin Mitchell, Mike Salayko
TEST CENTER COORDINATORS Andrew Hawn, Julian Weatherby

NETWORK WORLD-PC WORLD TEST CENTER DIRECTOR William L. Rinko-Gay

ONLINE SERVICES GROUP

PUBLISHER Thomas Gewecke
DIRECTOR, BUSINESS DEVELOPMENT Sara Frankel
DIRECTOR, CIRCULATION Noël McLaughlin
DIRECTOR, MARKETING Scott Danish
DIRECTOR, OPERATIONS Nancy H. Miller
DIRECTOR, PRODUCT DEVELOPMENT Adam Block
MANAGER, ONLINE DESIGN Jonas Höglund
ONLINE PRODUCERS Carla Lieberman, Licia Slimon
AUDIENCE DEVELOPMENT MANAGER Declan Fox
CONTENT ENGINEER Nick Van Cleve
PRODUCTION COORDINATOR Paul O'Neil
PRODUCERS, PRODUCT DEVELOPMENT Shoshana Berger, Greg Weinger
ASSISTANT TO THE PUBLISHER AND SPECIAL PROJECTS MANAGER Martyne Pagé
FLUEGELMAN INTERN Amy Ng

USER GROUP BOARD

Steve Bass, Pasadena IBM Users Group; Roger Bender, Microcomputer Managers Association; Jack Bolton, Atlanta PC User's Group (APCUG); Brian Camenker, Boston Computer Society; Rollie Cole, APCUG; Mary Dolce, Chicago Computer Society; Sandy Frunzi, Las Vegas PC User Group (LVPCUG); Al Harrison, Houston Area League PC Users; David Hoffman, NYPC; Joseph Rigo, NYPC; Robert Rodrigue, MicroLink PC User Group; Kenny Wynn, LVPCUG

PCW COMMUNICATIONS

PRESIDENT AND CHIEF EXECUTIVE OFFICER Richard J. Marino
PUBLISHER J. Samuel Huey
VP AND ASSOCIATE PUBLISHER Jeff Edman
VP AND CHIEF FINANCIAL OFFICER Vicki Peilen
VP, CIRCULATION Shawne Burke Pecar
VP, HUMAN RESOURCES Richard Willoughby
VP, MANUFACTURING Linda Manes Goodwin
VP, RESEARCH Cheryl Brink

HOW TO CONTACT PC WORLD

SUBSCRIPTION SERVICES

Subscriber Services, P.O. Box 55029, Boulder, CO 80322-5029. **PHONE:** 800/234-3498 (303/604-1465 in Colorado and Canada). To place new orders: 800/825-7595. **INTERNET:** customer_service@pcworld.com

MAIL AND PC WORLD ONLINE

PC World Editorial, 501 Second St. #600, San Francisco, CA 94107
PHONE: 415/243-0500 **FAX:** 415/442-1891
AMERICA ONLINE: keyword pc world
COMPUSERVE: go pcworld
MICROSOFT NETWORK: go pcworld
PRODIGY: jump pc world
WORLD WIDE WEB: http://www.pcworld.com
INTERNET: letters@pcworld.com

QUESTIONS AND SUBMISSIONS

Send material electronically to the appropriate forum on PC World Online (for example, send *Answer Line* submissions to the Answer Line forum); to the online address listed below; or mail them to *PC World*. Include your name, city, and state in all correspondence. We reserve the right to edit letters.

PC World pays $50 for published *Here's How* tips and questions; accepted submissions acknowledged by payment. Please note that editors cannot guarantee personal responses to questions that are not posted to *PC World's* online forums.
LETTERS: letters@pcworld.com
CONSUMER WATCH: consumerwatch@pcworld.com
PCW ADVOCATE: advocate@pcworld.com
BUGS AND FIXES: bugs@pcworld.com
REAL PROBLEM: CompuServe, 72614,1534; 415/978-3212 (phone), 408/338-0945 (fax). *PC World* pays $300 per published column.
ANSWER LINE: scott_spanbauer@pcworld.com
WINDOWS TIPS: pcwsdunn@aol.com
SPREADSHEET TIPS: richard_scoville@pcworld.com
WORD PROCESSING TIPS: george_campbell@pcworld.com
DATABASE TIPS: celeste_robinson@pcworld.com
INTERNET TIPS: judy_heim@pcworld.com
HARDWARE TIPS: kirk_steers@pcworld.com
MULTIMEDIA TIPS: richard_jantz@pcworld.com
UPGRADE GUIDE: stan_miastkowski@pcworld.com
FULL DISCLOSURE: smanes@ix.netcom.com
MULTIMEDIA EDITION: kimberly_stein@pcworld.com

NEW PRODUCT ANNOUNCEMENTS

Address hardware and software press releases to *New Products* at *PC World*, or call 415/978-3212.

REPRINTS AND PERMISSIONS

You must have permission before reproducing any material from *PC World*. Write to *PC World*, Reprints and Permissions, 501 Second St. #600, San Francisco, CA 94107; include a phone number. To order reprints of your company's editorial coverage in *PC World*, call 612/582-3810.

BACK ISSUES

PC World issues and article copies are available on microfilm and microfiche from UMI, 300 N. Zeeb Rd., Ann Arbor, MI 48106-1346; 800/521-0600.

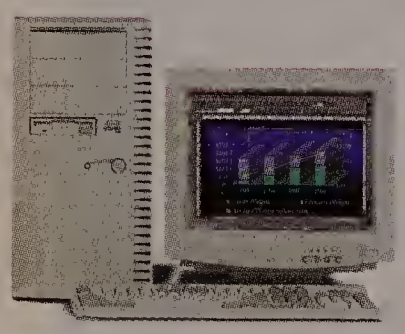
MAILING LISTS

Occasionally we make our subscribers' names available to other companies whose products may interest you. If you want your name excluded from these mailings, send a request with your mailing label to Subscriber Services, P.O. Box 55029, Boulder, CO 80322.

Make a 180 towards Pentium® Pro technology

Introducing ALR's new 180-MHz Pentium Pro PCs that will turn you around.

ALR OptimaPro DT



ALR OptimaPro MT

OptimaPro DT/MT Model 1

180-MHz Pentium Pro Processor with 256-KB Cache
16-MB ECC Memory (expandable to 256-MB)
Integrated 64-bit PCI Graphics
Integrated 16-bit Sound Controller
2 Universal Serial Bus Ports
DMI Hardware Management

Designed for Microsoft Windows 95 · Microsoft Windows NT Compatible · Yes NetWare.

$1695

with OptimizerPro 2100-NT Bundle Pack

2.1-GB EIDE Hard Disk
8X IDE CD-ROM
Microsoft® Windows NT Workstation 4.0
ALR 2-button Mouse

$2199

Looking for even more power? ALR's Evolution Dual6, starting at only $2195, delivers workstation class technology with an easy upgrade path to ***Dual Pentium Pro Processing****.*

You've set a course for success. That's why you're using the most demanding business, graphics, or engineering applications. That's why you use 32-bit operating systems like Windows® NT. And that's why you need the power of an ALR OptimaPro system with 180-MHz Intel Pentium Pro technology. Add ALR's new OptimizerPro Bundle Packs, and you'll get everything you need to take advantage of this advanced processing power. All for about the same price as a standard Pentium system.

intel inside PENTIUM® PRO PROCESSOR

Drawing upon our award-winning experience in the high-end server market, we've designed these new desktops for extraordinary power and reliability. And like all ALR systems, the OptimaPros are covered by one of the most comprehensive warranties in the industry. 5 Years /36 months, with the first year of on-site service for free.*

5 YEAR 36 month warranty

So, when you're ready to turn your business toward the future, call ALR at:

1-800-444-4ALR *(ref# 5312)*

ALR®
Advanced Logic Research, Inc.

Monitors sold separately * **Requires one time registration fee of $9.95. ALR is on the Internet - http://www.alr.com,** *CompuServe* - **GO ALRINC.** *& America Online* - **Keyword ALR** Advanced Logic Research, Inc. 9401 Jeronimo, Irvine, CA 92718 (714)581-6770 FAX: (714) 581-9240. Prices, configurations and specifications subject to change without notice. Systems shown with optional equipment. Pricing based on U.S. dollars. ALR is a registered trademark of Advanced Logic Research, Inc. Pentium logo and Intel Inside logos are trademarks of Intel Corporation. All other brand and product names are trademarks or registered trademarks of their respective owners. * Some restrictions apply- contact ALR for complete details. © 1996 by ALR

Circle 9 on reader service card

IS YOUR PC LESS THAN CONVINCING?

REAL SOUNDS.

Sound Blaster® audio cards include awesome wave-table synthesis providing the most realistic PC sound in the universe.

REAL GRAPHICS.

Graphics and video products deliver faster performance, higher resolutions, more colors and full motion video playback and capture.

REAL SPEED.

Sound Blaster multimedia kits give you high speed CD-ROM performance with wave-table sound and the software you really want – top sellers from current hot lists.

REAL FREE SOFTWARE.

To join our new on-line membership club and receive $200 worth of free software, go to the "Creative Connection" at www.soundblaster.com/

Do it today. And learn more about upgrades so real, they're unreal.

GET REAL.

CREATIVE®
www.soundblaster.com

Circle 69 on reader service card

© Copyright 1996 Creative Technology Ltd. Sound Blaster, Sound Blaster Discovery CD and the Creative Labs logo are registered trademarks of Creative Technology Ltd. Sound Blaster AWE, Graphics Blaster and Internet Blaster are trademarks of Creative Technology Ltd. All other names are the property of their respective holders. All specifications are subject to change without prior notice.

Windows 95, NT, and Beyond

CHICAGO, NASHVILLE, MEMPHIS, CAIRO—the Windows we want always seems at least a year away and as remote as Timbuktu. And on the verge of '97, that's not about to change anytime soon. What's different is that it's harder to figure out *which* Windows we want. Today there are no fewer than five versions to choose from, and at least more two versions and one interface upgrade are scheduled to ship in the next six to nine months. And that's just considering options for desktop and notebook PCs.

In the coming year, expect at least three upgrades to Windows: Nashville, Memphis, and NT 5.0.

WINDOWS TODAY

THE VERSIONS OF Windows available now for desktops and notebooks are Windows 95, Windows 95 OSR2, NT Workstation 4.0 with its new Win 95 interface, Windows 3.*x*, and Windows for Workgroups 3.*x*. Choosing among them is far from simple.

Windows 95 vs. NT 4.0. For this month's cover story, "War of the Windows: NT 4.0 vs. 95," we tested the final shipping version of NT Workstation 4.0 with more than 60 hardware and software products and more than 15 hardware configurations. We compared it to Windows 95 in performance, compatibility, and features. Our recommendations vary, depending on where you work and the type of PC you use.

For small companies with 486 and Pentium PCs and no IS department, Windows 95 is the best bet. It works with more software and hardware than NT, and it's easier to use and (though still not crashproof) far more stable than Win 3.*x*.

Midsize and large companies with well-equipped Pentiums and IS departments can choose either route, NT or 95. The two versions are a wash in terms of overall performance, which varies more by application than by operating system. They're also equivalent in ease of use, now that they share the same interface. The trade-off: NT's stability and security versus Win 95's compatibility. If you're leaning toward NT or your IS department mandates NT, find out *beforehand* if drivers are available for all your peripherals, and check with vendors on software compatibility.

For notebooks, Windows 95 is usually the best choice. NT does not yet support Advanced Power Management or Plug and Play, although several vendors—including Dell, Digital, and IBM—are writing drivers to support NT on notebooks.

Windows 95 OSR2. If you're buying a new PC now and want Windows 95, what you'll get is Windows 95 OSR2 (OEM Service Release 2), which is not sold as a separate, shrink-wrapped product. Among OSR2's many updates and fixes are a new file system—FAT32—for access to hard disk partitions larger than 2GB; support for Universal Serial Bus peripherals; DriveSpace 3, a disk-compression utility; support for Intel's upcoming Pentium MMX and compatible processors; and a variety of Internet utilities.

WINDOWS TOMORROW

IN THE COMING YEAR, expect at least three more upgrades to the Windows operating system: Nashville, Memphis, and NT 5.0.

Nashville. The next version of Internet Explorer, known as Nashville, will add an optional interface to Windows 95 and NT 4.0. The beta version of Internet Explorer 4.0 is slated for December release, with the final version scheduled to ship in the first quarter of this year. More than a simple Web browser, IE4 will let you select a single Web-based view for your desktop, hard disk, intranets, and the Internet. The goal: a simpler, more visual way to navigate, no matter where your documents and files reside.

Memphis. The next version of Windows, codenamed Memphis and unofficially called Windows 97, will include IE 4.0, an assortment of features from OSR2, and other updates. The beta release is scheduled for the first quarter of this year; Microsoft says the final version will ship midyear at the earliest. Among the new features: IE 4.0's Web-centric interface; the FAT32 file system; a new Windows Driver Model, designed to provide a single set of drivers for Windows 95 and NT; and support for USB and other new hardware standards (see page 124). Unlike OSR2, Memphis will be sold as a shrink-wrapped product.

NT 5.0. Don't mistake NT 5.0 for Cairo. Some of the technologies dubbed "Cairo" are built into NT 4.0; others will be delivered in NT 5.0, which Microsoft expects to ship soon after Memphis. Like Memphis, NT 5.0 will support unified WDM drivers, Plug and Play, and Advanced Power Management. To this, it will add an array of server-side improvements for linking PCs to networks and the Internet.

And the long-promised merger of Memphis and NT? Not until next year at the earliest. Sounds like the Windows we really want.

Cathryn Baskin is editor in chief of PC World. ■

PHOTOGRAPH: ERIK BUTLER

King of the Road

The 30 Award-Winning **WinBook XP5** *for only*

$1999

WinBook *XP5*

- 100MHz Intel® Pentium® Processor
- 10.4" Active Matrix Color Display
- 810MB removable Hard Drive
- 8MB RAM expandable to 32MB
- 256K L2 Cache
- 3.5" 1.44MB Diskette Drive
- 6.1 lbs
- 14.4 Internal Fax/Modem
- NiMH Battery
- 1MB Video RAM
- Two Type II or one Type III PCMCIA Slot
- Integrated dual-button pointing stick, optional dual-button trackball or dual-button touchpad
- Parallel, Serial and PS/2 ports
- One-year extendable warranty
- Microsoft Windows® 95 installed on all models

$1999 *Add an 8X CO-ROM docking station with expansion bay and 2 expansion slots for $399*

CALL FOR OTHER MODELS
Limited quantities available.

- 133MHz Intel® Pentium® Processor
- 10.4" Active Matrix Color Display
- 1.3MB removable Hard Drive
- 16MB RAM expandable to 32MB
- 256K L2 Cache
- 3.5" 1.44MB Diskette Drive
- 6.1 lbs
- 28.8 PCMCIA Fax/Modem
- Lithium Ion Battery
- 1MB Video RAM
- Two Type II or one Type III PCMCIA Slot
- Integrated dual-button pointing stick, optional dual-button trackball or dual-button touchpad
- Parallel, Serial and PS/2 ports
- One-year extendable warranty

$2599 *Add an 8X CO-ROM docking station with expansion bay and 2 expansion slots for $399*

CALL FOR OTHER MODELS
Limited quantities available.

Designed for Microsoft Windows 95

With over 30 awards and counting, the WinBook® has made its mark as a winner. WinBook has built a reputation for having the highest quality, best-designed notebooks at the lowest prices available.

For the impossible price of $1999 the XP5 offers you the high performance of the power-saving Intel® Pentium® notebook processor with the brilliance of an active matrix screen plus an internal 14.4 fax/modem!

WinBook keeps winning...and winning...and winning...and winning...and winning...and winning...and winning...and winning...and winning...and winning...and winning...and winning...and winning...and winning...and winning...and w

Laptop Buyer's Guide May 1996, WinBook XP5 P120 16/1.3GB TFT

December 1996, WinBook XP5 P100

November 1996 Windows Recommended WinBook XP5/P120

October 1996 BYTE Best Best Value Notebook WinBook FX

January 1996 PC Laptop Editor's Choice – WinBook XP, XP5

March 1996, Windows 5 of 5 Rating WinBook XP5

August 1996 PC Magazine Editors' Choice WinBook XP5 P100

©1996 WinBook Computer Corporation. All rights reserved. WinBook is a registered trademark of Micro Electronics, Inc. The Intel Inside logo and Pentium are registered trademarks of the Intel Corporation. All other trademarks and registered trademarks are property of their respective corporations. All prices and specifications are subject to change without notice or obligation. Prices do not include shipping

Satisfy your need for speed

The Multimedia **WinBook FX** *(P133) starting at*

$2799

WinBook *FX*

- 133MHz Intel® Pentium® Processor
- 12.1" SVGA Active Matrix Color Display
- 256K Syncburst L2 Cache
- Options Bay accepts 6X CD-ROM, 3.5" Floppy Drive (both included) or Optional 2nd Lithium Ion Battery
- 59 Watt Smart Lithium Ion Battery
- Integrated dual-button pointing stick, optional touchpad (shown)
- Integrated Soundblaster Pro 16-bit Stereo Audio
- One Type II and one Type III PCMCIA Slot
- PCI Local-bus PCMCIA Controller with Graphics Accelerator
- 810MB removable Hard Drive
- 8MB EDO RAM expandable to 40MB
- Parallel, Serial, PS/2, Game port, and one 2-way Infrared port
- One-year extendable warranty
- Microsoft Windows® 95 installed on all models

$2799 *Call about our Power Package with 3-year Warranty*

CALL FOR OTHER MODELS AVAILABLE

NEW 150MHz MODEL!

- 150MHz Intel® Pentium® Processor
- 12.1" SVGA Active Matrix Color Display
- 28.8 Internal Fax/Modem
- 1GB removable Hard Drive
- 16MB EDO RAM expandable to 40MB
- 256K Syncburst L2 Cache
- Options Bay accepts 6X CD-ROM, 3.5" Floppy Drive (both included) or Optional 2nd Lithium Ion Battery
- 59 Watt Lithium Ion Battery
- Integrated dual-button pointing stick, optional touchpad (shown)
- Integrated Soundblaster Pro 16-bit Stereo Audio
- One Type II and one Type III PCMCIA Slot
- PCI Local-bus PCMCIA Controller with Graphics Accelerator
- Parallel, Serial, PS/2, Game port, and one 2-way Infrared port
- One-year extendable warranty

$3799 *Upgrade to 2GB HDD, 32MB RAM—add $600*

CALL FOR OTHER MODELS AVAILABLE

Satisfy your need for speed with the multimedia WinBook FX. The new 150MHz power-saving Intel® Pentium® processor makes your applications fly. If your choice is more value-driven, the 133MHz FX is priced to move at only $2999. But whatever your speed, your FX gives you blazing performance in a multimedia notebook, complete with swappable CD-ROM/ 3.5" disk drive modules and long lasting 12-cell lithium ion battery. Plus, you get a giant 12.1" active matrix screen.

Give one of our knowledgeable reps a call today to help you choose the WinBook that's right for you and for additional information on the many models available to you.

1-800-468-1037

Monday-Friday, 8am-9pm EST
Saturday, 9am-4pm

Use your WinBook Card, American Express Card, VISA, Discover Card, MasterCard, personal check or P.O. with credit approval. U.S. sales only. 30-day unconditional money-back guarantee from date of purchase.

WinBook®
COMPUTER CORPORATION
a subsidiary of Micro Electronics, Inc.

Circle 254 on reader service card

winning...and winning...and winning...and winning...and winning...and winning...and winning...and winning...and winning...and winning...and winning...and winning...and winning...and winning...and winning...and

NSTL PC Digest 4-Star Rating August 1996 WinBook FX P133

WINDOWS MAGAZINE RECOMMENDED — October 1996 Windows Recommended WinBook XP5/P120

PC WORLD BEST BUY — June 1996 WinBook XP5 P120 16/1.3GB Active Matrix

CBG&H BEST BUY — Laptop Buyer's Guide July 1995 WinBook XP DX4100 Active Matrix

EDITORS' CHOICE AWARD — January 1995 PC Laptop Most Improved WinBook XP

WINDOWS MAGAZINE RECOMMENDED — December 1996 Windows Recommended WinBook FX/P133

PC MAGAZINE EDITORS' CHOICE — August 1994 PC Magazine Editors' Choice WinBook XP DX250

Introducing Mega

(909) 869-7976 Fax (909) 869-7958 • Call FaxSonic™ at (909) 869-7318 (24-hour fax-on-demand) • Internet: www.viewsonic.com
Prices and specifications subject to change without notice. **MSRP as of January 1, 1997
© ViewSonic Corporation 1996, 1997. All rights reserved. Corporate names and trademarks stated herein are the property of their respective companies

Monitor:™

with 250 MHz video input bandwidth, 1800 x 1440 @ 76Hz and a 30–115 KHz horizontal scan range,

what else could you call it?

Announcing the ViewSonic P815 21" (20" viewable) monitor: Mega sharp. Mega stable. Mega fast. Mega value.

It's the latest innovation from ViewSonic®, the recognized leader in color monitor technology. And it's a mega hit.

More power to you.

Revolutionary Invar Shadow Mask technology delivers some pretty unbelievable numbers. Like resolutions up to 1800 x 1440 at a 76Hz refresh rate.

	ViewSonic Professional Series				
Model	P815	PT813	P810	PT775	17PS
CRT Size/Viewable	21"/20.0"	21"/20.0"	21"/20.0"	17"/16.0"	17"/16.0"
Dot/Aperture Grille Pitch	0.25mm	0.28mm*	0.25mm	0.25mm*	0.25mm
Horizontal Frequency	30-115 kHz	30-107 kHz	30-95 kHz	30-96 kHz	30-86 kHz
Video Input Bandwidth	250 MHz	230 MHz	200 MHz	200 MHz	135 MHz
Maximum Resolution	1800 x 1440	1600 x 1280	1600 x 1280	1600 x 1280	1600 x 1280
Optimal Resolution	1800 x 1440 @ 76Hz	1600 x 1200 @ 85Hz	1600 x 1200 @ 76Hz	1600 x 1200 @ 77Hz	1280 x 1024 @ 80Hz
TCO Certified	Yes	Yes	Yes	Yes	Yes
MSRP**	$2,195	$1,895	$1,745	$999	$799

*Aperture Grille

Winner
ViewSonic P815
June 1996

Winner
ViewSonic P815
June 1996

A whopping 250MHz video input bandwidth. And a horizontal scan rate up to 115KHz. All of which are high water marks in the industry.

Add to that a 0.25mm dot pitch (also the best in the business) and you've got the new standard for high-end CAD, document imaging and other applications where absolute precision is a prerequisite.

The benefits of this new, state-of-the-art P815 are many—and obvious to the eye. The text is the sharpest available today. Period. The images are absolutely flicker-free, virtually eliminating fatigue and eye strain.

The P815 displays more information faster than any monitor you've ever seen before. And with BNC and VGA connectors, you can easily switch between two separate systems.

Compared to other monitors there is no comparison.

After winning the Byte Spring '96 "Best of Comdex" and "Best of PC Expo" awards, the performance is obviously rated the highest in the industry, but the price is not—it is a real mega value. It comes with ARAG® anti-reflection, anti-glare screen coating, a limited 3 year warranty on CRT, parts and labor (the best in the business), and an optional Express Exchange℠ Service program that insures 48 hour replacements.

If all this doesn't convince you that the ViewSonic P815 is truly a "mega monitor," then seeing it certainly will. Call (800) 888-8583 and ask for agent 7497 for your nearest dealer.

ViewSonic®

Circle 224 on reader service card

Truth in Advertising.

"Plextor has a reputation for building fast, well-made CD-ROM drives."
Windows Sources, July 1996

"When it comes to seriously engineered CD-ROM drives, no one does it better or more consistently than Plextor."
New Media, February 1996

"The best choices for business and network use, they earn their stripes with top-notch performance..."
Best Buy: PC World, Sept 1996

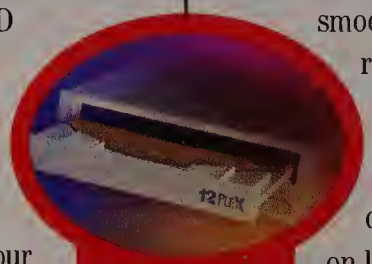
Plextor CD Solutions.

The critics of the techno-world say it best. Plextor CD products set the benchmark for professional quality and performance.

Utmost reliability. All Plextor's products adhere to the strictest standards of quality. From the durable metal construction of our CD drives, to the fault tolerance of our CD-ROM servers, Plextor virtually eliminates downtime.

Leading edge PC maker, Micron Electronics Inc., agrees with the critics. That's why only Plextor CD-ROM drives make it into their top-of-the-line computers.

For solo users and networks alike, Plextor CD-ROM drives consistently deliver blistering fast performance – nothing out there is faster. And for intense data searches, mega-chunk transfers, smooth-motion video, and seamless animation – even running virtual reality programs in real time – no other CD-ROM drive compares.



12PleX Now Available!

We provide professional quality CD-ROM drives, CD-R drives, CD-ROM towers, and CD-ROM servers that give on-line access to a multitude of drives simultaneously. And look for our soon-to-be-released 200 disc CD-ROM changer. Whatever your needs, Plextor provides the industry's best.

Be your own critic. Log on for complete reviews, specs and what's new at http://www.plextor.com. Or call 1-800-4PLEXTOR for the Plextor devotee nearest you.

PLEXTOR®

CD-ROM Drives	CD-R Drives	CD-ROM Towers	CD-ROM Network Servers	CD-ROM Jukeboxes

©1996, Plextor Corp. All Rights Reserved. All trademarks or registered trademarks specified are owned by their respective holders.

Circle 175 on reader service card

YOUR TAKE ON: Upgrades and motherboards ◆ Recycling RAM ◆ Modem bug zapped

GRADING OUR UPGRADES

I RESPECTFULLY SUBMIT that you missed the boat with your upgrade article ["Upgrades: The Best for the Buck," November]. With regard to RAM, I have noticed a significant increase in speed after moving from 16 to 32MB on my Pentium-100. When running Internet applications (browser, newsgroup reader, mail program) and one other program in the background (like Word), my hard drive used to thrash while looking for information in the swap file. No more. With RAM available at about $5 per MB, this upgrade is well worthwhile.

As you stated, 486 upgrade kits may not always be worth the money. But if a user is willing to do a little research, compatible upgrade CPUs can be had via mail order for about half the price of a kit. The user must read the motherboard manual and/or make a few phone calls to check compatibility of BIOS, voltage, and jumper settings.

There is also the risk-taker's approach to upgrading: overclocking. For example, many Pentium-75 PCs will run comfortably at 90, 100, or even 120 MHz. Certainly this voids warranty and is not without risks: People who've tried to run their chips at unreasonable speeds (a 133 chip overclocked to 200 MHz) have burned them out. But the vast majority who have aimed for a slight increase in speed have either succeeded or found that the computer would not boot correctly until the speed was set back.

Douglas Morse, New York

DID I MISS SOMETHING? Why didn't you include the replacement of the motherboard on a 486/66 with a 486/133 (AMD)? I have seen these advertised for $98. A user who is not "technical" can get some local tech to do it for about $35. The total cost would be around $135.

That is what I did when replacing a 386/40. The new motherboard comes with a CPU and fan as well as four 30-pin slots (to save some of the old memory) and just two 72-pin slots (for the recently inexpensive RAM). It also comes with both PCI and ISA slots. The built-in controller supports PCI for the disks.

I believe this is the most cost-effective way to build the new so-called NC. In fact, Intel sees the minimum NC as a "P-200 with power steering and power brakes."

Eduardo Salgado, Laredo, Texas

YOUR UPGRADE ARTICLE was one of the best and most informative write-ups I have come across in a long time. I was about to invest another $1000 to upgrade

my 486 PC. After reading your article I believe I can reduce that amount greatly. Keep up the good work, and thanks.

Gary Wilkinson, Central Point, Oregon

I CAN'T BELIEVE YOU people tried this, much less published it!

Your November article on upgrades contains a photo and caption that could cause anyone who sees it to attempt the same thing—with disastrous results. The photo shows a motherboard with an upgrade CPU in a ZIF socket whose handle has been taped down. Not only is good contact not ensured (leading to system crashes and data loss), but when the system warms up, the adhesive in the tape will flow—allowing the handle to slip until the CPU is released. If the CPU is in a tower case, it will then fall out, probably bending a few pins or sustaining worse damage when it hits the bottom of the case. Of course, anything you were working on would be toast, too. If you have purchased an upgrade CPU and can't close the handle all the way on your ZIF socket, return the upgrade for a different one.

Derek Piasecki, Internet

Editor's response: We certainly do not recommend a Scotch-tape solution to anybody; we wanted to illustrate the problem our testers had run into. —Yael Li-Ron

IN YOUR "RAM SIMMPLIFIED" sidebar ["Upgrades: The Best for the Buck," November] the author advises PC users whose slots are full to take out their old RAM and throw it away. But old RAM should not simply be discarded: Instead, you should trade it in or sell it. Someone out there can always use your old RAM, and many companies will trade for it—even if it's bad—because they can use the parts.

Ron Langdon, Internet

THE LAST LAUGH?

IN THE NOVEMBER PC WORLD you printed this: "Give your language it's do respect." Not everybody is a writer, but that doesn't mean you should subject your readers to poor language. "Run your Web page through a spelling and grammar checker" ["The Web and You," November]. Too bad you didn't follow your own advice. The word "it's" is a contraction for "it is," and it should be obvious that "due" is meant where "do" resides.

Alan Mitchell, Atlanta, Georgia

Editor's response: You're absolutely right, a fact we're punfully aware of, having received lots of similar messages from other readers. The spelling was deliberate: We were just trying to be witty. Oh, well. —Yael Li-Ron

HELP FOR REVEAL USERS

I HOST A NEW SITE that is devoted to supporting people who were abandoned by Reveal Computer Products. The site is unique in that it finds the original manufacturer of the product so you can still get software and hardware support. It adds a new product every other day to its list. The URL is http://www.execpc.com/~ellingsj/.

ILLUSTRATION: PHILIP ANDERSON

I know there are a lot of people out there who want support.

Jason J. Ellingson, Internet

Editor's response: That's the first piece of good news Reveal owners have had in a long time. Since we ran our last article on Reveal's Chapter 7 bankruptcy proceedings (PC World Online, October 17), the company's CompuServe forum has been shut down. Users can also try Reveal's fee-based phone support, a $2-per-minute service maintained by a company called CNM. The phone number is 900/225-3000. **–Michael Desmond**

COPYING NOT CUTTING

I VERY MUCH enjoyed your article about online help ["The Complete Guide to Free Help Online," October]. On page 133, in "Get the Right Advice the First Time," you recommend using Windows SysEdit and cutting and pasting the contents of autoexec.bat, config.sys, and so on. You should have said "copying and pasting" because cutting the files would cut the information on them. Then when your computer restarted, you would *really* need online help.

Ramon Campos, Tijuana, Mexico

U.S. ROBOTICS À LA MODEM

I WAS EXTREMELY pleased and quite relieved to read your October "Bugs and Fixes" article about the bug in some U.S. Robotics V.34 Sportster modems. In August 1996 I purchased a system with a USR 28.8 fax-modem installed. When I connected to a local BBS in terminal mode, I experienced the time-lag event bug that these modems suffer from. I tried for several weeks to fix it, with no success. Then my October issue of *PC World* arrived, and there in black and white was the answer to the bug I had resigned myself to living with. I immediately contacted USR and explained the problem. Ten days later I received a new modem as a replacement and have been connected trouble-free ever since—thanks to *PC World* keeping its readers up to date on the latest news and information in the rapidly changing world of computing.

Wayne Morris, Internet

PC World *welcomes your responses, ideas, and other letters to the editor.* *See page 12 for contact information.* ■

CORRECTIONS & CLARIFICATIONS

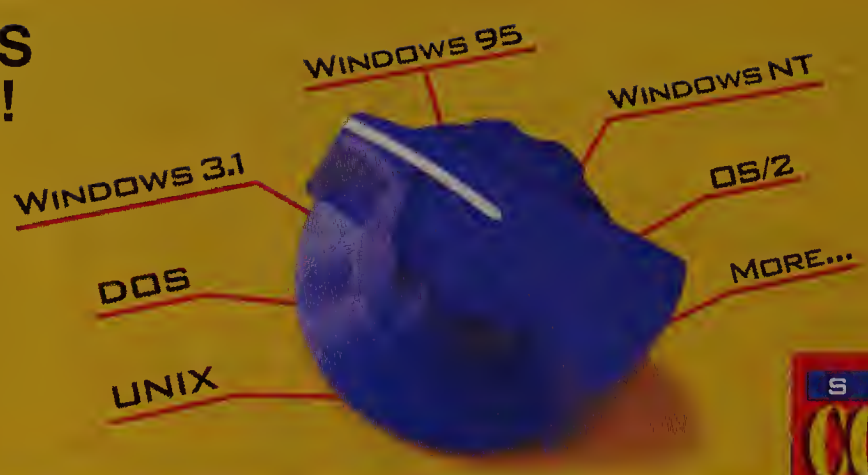
In *New Products* in the November issue of *PC World*, our review of Iconovex's EchoSearch browser utility should have stated that a preview list of your searches is available from the Options menu. Also, the product ranks its findings by conceptual categories, not alphabetically.

We listed an incorrect phone number for Tangent Computer in our October and November issues. The correct number is 800/800-5550.

PC World regrets the errors.

Windows NT • Solaris • Linux • Windows 95 • OS/2 • PC-DOS • SCO UNIX • QNX • Free BSD • Warp • Lynx OS • Coherent Unix • NetWare • NeXT Step • Windows 95 • UnixWare • XENIX

Run more than one OS on your PC!



SYSTEM COMMANDER

System Commander makes it safe and easy to add as many OSes to your PC as you want!

Easy Automatic Installation
- Prepares your PC for new OSes in minutes
- Simply select the OS you want and *System Commander* does the rest
- To use another OS simply reboot and make another selection

Money-Saving Flexibility
- Minimize hardware expenses by putting up to 100 OSes on one PC
- Use any combination of hard drives
- Use any Intel compatible OS or combi nation of OSes, in English or any other language

System Commander is only $99.95 and comes with an unconditional 60 day money back guarantee. Get **Free** overnight shipping when you mention this ad. *Order it now and have it on your desk tomorrow morning!

"Highly recommended"
John C. Dvorak, PC Magazine

Free overnight shipping* when you mention this ad.

800•648•8266
www.v-com.com

V Communications, Inc.
4320 Stevens Creek Blvd, #120-3PCW
San Jose, CA 95129
408.296.4224 fax 408.296.4441

* When ordered before noon PST. No Saturday delivery. Standard shipping outside US. CA res. add $7.25 sales tax. Offer subject to change without notice. All logos and product names are trademarks of their respective companies. VISA/MC/Amex ©1996

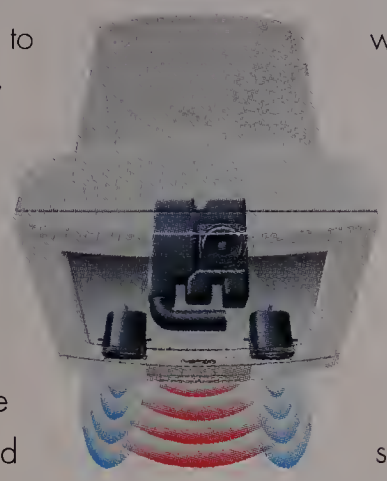
• Windows v3.x • DOS/V • Windows 95J • Warp • MS-DOS • Linux • Merlin

Circle 255 on reader service card

SUDDENLY, EUROPEAN STANDARDS ARE A GORGEOUS NECESSITY.

As 17" becomes the standard for your multiple applications, and applications become more media-intensive, don't just settle for a bigger system. Acquire a better one. A media-ready Nokia 447X.

These are the first monitors in the world to achieve the new VESA standards for display clarity. Their spacious 15.7" viewing area boasts an aperture grill of .25 mm, and refresh rates as lofty as 150 Hz for virtually frozen screens. They are also capable of the ultimate 1600 x 1200 resolution. In other words, these screens are not just larger, they are clearer—which translates directly to improved working conditions and user-sensitivity. You'll also be relieved to know these are the first monitors to be TCO'95 certified for greatly reduced screen emissions. This reaffirms Nokia's leadership in the science it pioneered.

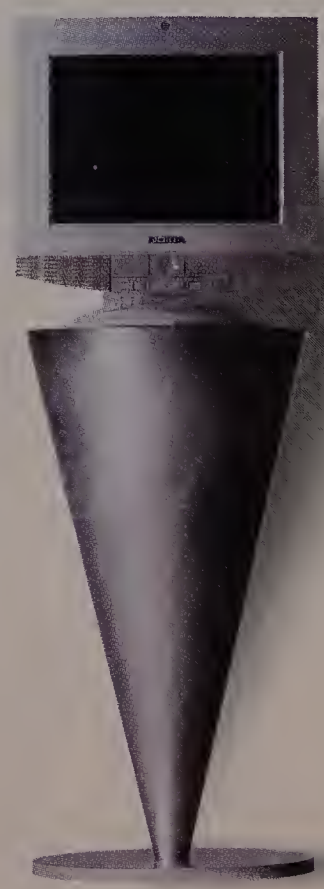


The media-ready series does more than extend Nokia's most award-winning model. It literally shouts innovation. Dual powered stereo speakers in front combine with a sub-woofer in the swivel/tilt base to shape audio at the intimate volumes most suitable for working close to a monitor. Combined with its standard in-bezel microphone, the media-ready series enables the complete convergence of computing and communications.

Which makes the new 447X series a necessity for anyone making full use of their computer. After all, the best way to meet the standards is to work with the people who set them. Visit us at **www.nokia-americas.com** or call **1.800.BY.NOKIA**, ask for **Dept. N512**.

447Xi—High-resolution display, ideal for graphics-intensive applications

447Xov—Professional-caliber display with integrated speakers, sub-woofer, and microphone



447Xovc—Adds to X series features with built-in color video camera

NOKIA

Circle 164 on reader service card

*Models are continuously upgraded. Size of CRT measured diagonally. Actual viewing size is slightly less. Manufactured and designed in Finland in an ISO 9001 approved environment. © 1996 Nokia Display Products, Inc. Multigraph, Valuegraph, MicroEmission and FullScreen are trademarks of Nokia Display Products, Inc. E-Mail: bynokia@aol.com. Prices and specifications are subject to change without notice. The Energy Star emblem does not represent EPA endorsement of any product or service. All other trademarks are the sole property of their respective companies.

pc *by* sony

STATE OF THE ART COMPUTING ▸ **200 MHz** Pentium® Processor | **Fast Sony 8X** CD-ROM | **28.8 kbps** DSVD Modem | **32 MB** EDO RAM | **OUTSTANDING** SONY A/V ▸

3D **SRS®** Sound | **3D** Accelerated Graphics | Sony-tuned **MPEG** | EXCEPTIONAL SERVICE & SUPPORT ▸ Sony Technical Response Center | Interactive Online Support

you will *radiate confidence*

friends will ask if you got a haircut

associates will ask if you've lost a few pounds

relatives will ask if you're seeing someone new

your palmreader will ask how you like your new *pc by sony.*

1.800.4SONYPC (1.800.476.6972) www.sony.com/pc

©1996 Sony Electronics Inc. All rights reserved. Reproduction in whole or in part without written permission

SONY
intel inside
pentium
PROCESSOR
is prohibited. Sony, pc by sony and VAIO are trademarks of Sony. The Intel Inside Logo and Pentium are registered trademarks of Intel Corporation. SRS is a trademark of SRS Labs, Inc. ® toy configuration The Ohio Art Company.

*Not all standards may be upgradable. MultiSpin is a registered trademark and Easy ROM Update, FastFacts and See, Hear and Feel the Difference are trademarks of NEC Technologies, Inc. Windows 95 is a registered trademark of Microsoft Corporation. All other trademarks and registered trademarks are property of their respective owners. GSA #GS00K94AG5241PS01 ©1996 NEC Technologies, Inc.

Key #29497

INTRODUCING THE NEC MULTISPIN® 8X CD-ROM READER.

Looking for a quick way to retrieve data? How does 1200kb/sec data transfer rate and 140ms access speed sound? The fact is, there's no faster way to get applications running than with the NEC MultiSpin 8X CD-ROM reader.

Of course, our MultiSpin 8X readers offer more than just speed. You'll also get Easy ROM Update™ technology,* which adds security to your investment by letting you easily update to new standards. What's more, you'll find Windows® 95 Plug and Play, PC and Mac® compatibility, ease-of-use, and a one year limited warranty. So get yourself an NEC MultiSpin 8X CD-ROM reader. After that, you'll have no problem finishing off those hefty portions of data.

For more information, call 1-800-NEC-INFO or reach us via FastFacts™ at 1-800-366-0476 and request document #237801.

Visit NEC's new web site at http://www.nec.com

SEE, HEAR AND FEEL THE DIFFERENCE.™

NEC

Circle 201 on reader service card

winKrypt™

www.syncronys.com

Windows 95 CD & 3.5

LOCK YOUR DATA

SECURE YOUR E-MAIL

SEARCH FOR INTRUDERS

syncronys softcorp

Introducing WinKrypt

A comprehensive Windows 95 Security Suite that offers true system control and maximum protection for all your data and communications through MS Exchange and Windows Messaging. Featuring 3 key utilities: KeyDisk, KeySearch & KeyMail.

Order direct at 888.777.5600

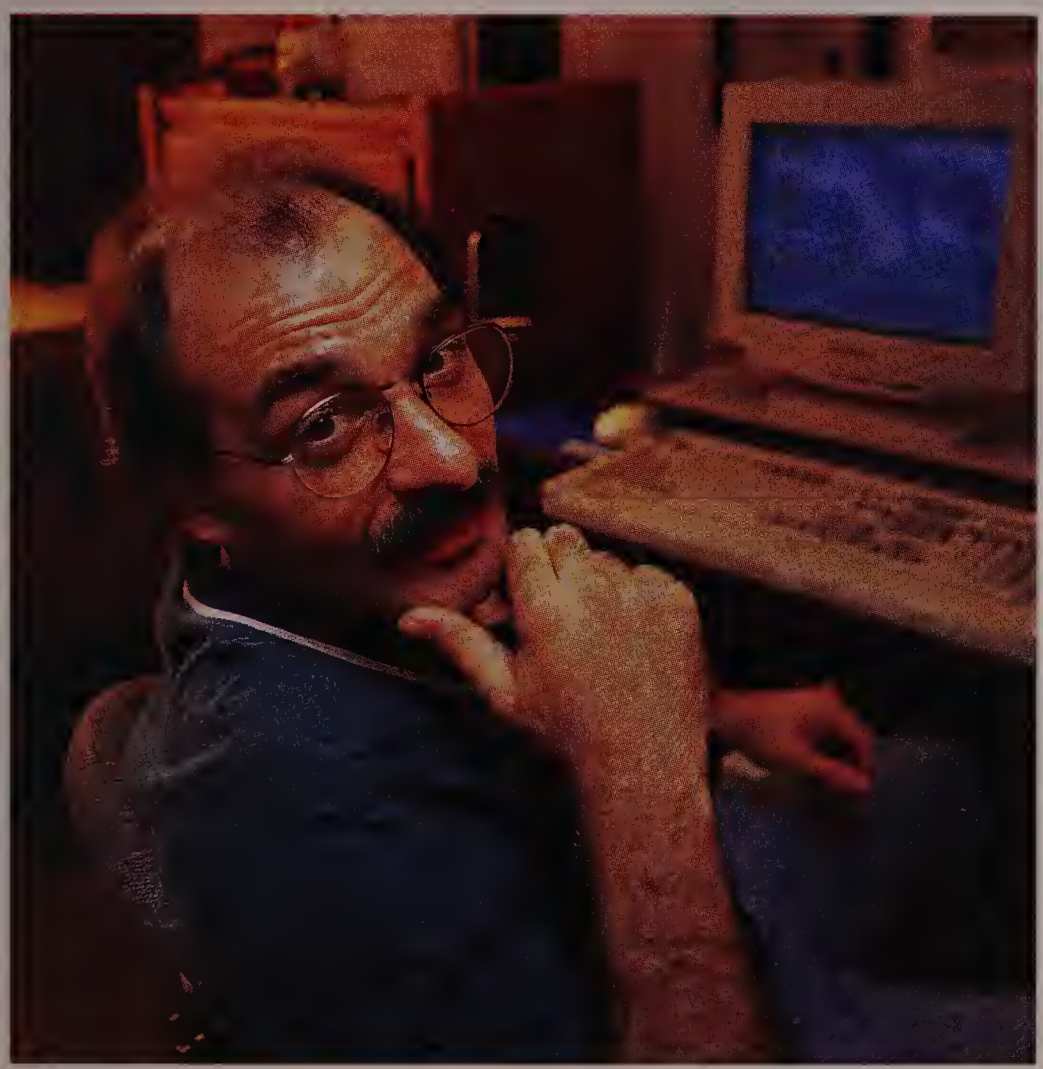
Circle 232 on reader service card

Now you're really safe

© 1996 Syncronys Softcorp. All rights reserved. Syncronys, the Syncronys logo and WinKrypt are trademarks of Syncronys Softcorp. All other trademarks are the property of their respective holders.

When Good Vendors Have Bad Times

Top-rated PC company Micron runs into trouble with tech support.



PHOTOGRAPH: KEVIN HORAN

NICK GLORIOSO HAD ALWAYS considered himself a patient man. He rarely lost his temper or raised his voice. Then he bought a Micron computer and logged more than eight weeks and four dozen phone calls trying to straighten out everything from a missing CD-ROM to a faulty hard drive. Now he's mad. And he wants everybody to know about it.

Once you've done your research, buying a new PC ought to be easy. But it was anything but for Glorioso, an instructor for General Motors in the Chicago area. He ordered his Micron Millennia in July 1996 and spent the rest of the summer trying to get it to work properly. His story—which took him nearly an hour to recount over the phone—sounds like a textbook example of how not to conduct customer service: hold times of up to 90 minutes; unreturned phone calls; promised shipments that never arrived. Ultimately, Glorioso got so angry and frustrated that he called Micron president and CEO Joseph Dealposa at home one Sunday evening. Five days later Glorioso received a replacement system that's been humming along without a hiccup ever since.

Frustrated consumers call *PC World* every day with tales of poor customer service at the hands of hardware and software companies. So why does Glorioso's tale of woe stand out? Simple. This is *Micron* we're talking about: The company that *PC World* readers have consistently ranked at or near the top in service and satisfaction. The company whose customers overwhelmingly say they would buy from again. What's happening to compel Glorioso and others to solicit help from *PC World*? Has the Cadillac of PC service lost its touch?

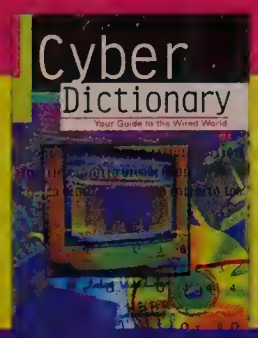
WAITING AND WAITING AND ...

IN FAIRNESS, Micron's overall service stats are still impressive. It's one of only two companies (Dell is the other) to receive a Best rating for service in our December 1996 reliability and service report ("Good-Bye to Good Support?"). But look a bit deeper, and you'll find a drop in two key categories: the time it takes customers to reach someone who can help them (called "Time to Talk" in our reliability and service ratings), and the time it takes to get problems resolved ("Time to Resolve").

Micron customers who respond to our monthly Reliability and Service Monitor say it's taking longer to reach a tech support representative who can help them. For example, in May 1996 when we tallied responses for the previous six months, Time to Talk averaged 24 hours. By September, that figure had increased to 32 hours. According to recent *PC World* data, it's also taking Micron customers longer to get problems resolved, from an average of just over seven and a half days in our May 1996 tally to almost nine and a half days in September.

These numbers hit close to home when I bought a Micron Home MPC myself late last June. It arrived without a hitch in early July and was working fine—at first. Then I started to load my own software and ran into a series ▶

Special offer for PCWorld readers—order by phone!
1.888.394.5996 ext.2

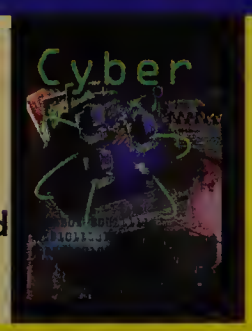


CyberDictionary's 900-plus definitions, mini-essays and time-saving tips make cruising the I-way a breeze.

$15.95*
*Plus $4.95 shipping and handling. California residents please add 8.25% sales tax.
http://www.kex.com

Road-side assistance for the information superhighway

Once you're cyber savvy, invest in the future with *Cyberstocks*, your road map to the new breed of companies involved with the Internet.



$24.95** Circle 152 on reader service card
**Plus $4.50 shipping and handling. Texas residents please add 8.25% sales tax.
http://www.cyberstocks.com

KNOWLEDGEXCHANGE
The Next Chapter in Business Publishing

CyberDictionary and *Cyberstocks* are available in bookstores throughout North America.

Cyberstocks is published by the Reference Press in association with Warner Books

COMING UP

IN FEBRUARY

MICROSOFT OFFICE 97: UPGRADE HEAVEN OR HYPE?

Microsoft is trumpeting the new version of its suite, with a reworked, easy-to-use interface; new Internet features; and an innovative information manager called Outlook. Is it upgrade-worthy or just the latest oversell?

TOO BUSY TO WORK: INFO OVERLOAD

Reports, memos, e-mail, faxes, voice mail, pages...technology designed to make us more efficient has ended up increasing our workload. Here are some tips for turning technology back into a time-saver.

ISPs: WHERE TO GO ON THE WEB

Internet service providers are not all the same. We signed up with 14 of the most popular national ISPs, enlisting reviewers from big cities to rural communities. We'll pick the ISPs most likely to keep your surfing free of snags and shoals.

SPECIAL REPORT ON WEB PRIVACY

Looking for anonymity? Privacy on the Internet doesn't exist. Almost anyone can track anything, from the Web sites you visit to your use of e-mail and online shopping. Here's the reality and the best way to protect yourself.

ALSO NEXT MONTH

▶ **The PC World Top 100:** Updated monthly, this is the most current buyers guide to PCs and peripherals. Check out the Top 20 Power Desktops, Budget Desktops, and Notebooks and the Top 10 Personal Printers, 15-Inch Monitors, Graphics Boards, and Internal Modems.

▶ **Personal Backup:** When you hear the word *backup*, do you think clunky tape drive? We tested more than 20 different backup devices and found solutions easier and more reliable than we expected.

▶ **Here's How:** Upgrade Guide to installing a sound board, plus much more.

PC WORLD

of baffling error messages. I did what most customers would do: I called tech support—and waited 45 minutes. Then, when the first fix didn't work, I called and waited again. Thirty minutes. And again. And again. Over the next three months, I waited on hold for a total of several hours and spoke with numerous technicians—none of whom were able to help me. Ultimately the problem was diagnosed as a bad motherboard. Great, I thought, at least now we know how to fix it. But diagnosing a problem is one thing; correcting it, I learned, is another.

I spoke to one obviously green technician who kept putting me on hold while she conferred with her supervisor; to another who couldn't stay on the line to see if his suggested fix worked because he was hungry and wanted to take his dinner break; and to a third who freely criticized the skills and commitment of his associates yet failed to follow up on promises he himself made. Over the course of several months, I was promised return phone calls that never came, a new motherboard that didn't ship, and a return merchandise authorization number that I still haven't received as of this writing.

STRUGGLING TO KEEP UP

CLAUDIA DELANEY, Micron's director of support and services, acknowledges some rough times in the tech support trenches and points to phenomenal sales as the primary culprit.

But organizational changes—in particular, Micron's purchase of Zeos Computer in April 1995—have compounded service problems. Minneapolis-based Zeos had one of the worst service records in our reliability and service ratings.

Though Micron discontinued the Zeos computer line last year, it retained Zeos's service facility in Minneapolis, where more than half of Micron's technical support specialists are now based. A significant proportion of these support staffers are new to the company, which makes operating two support sites even more challenging.

Nowhere is the lack of coordination more apparent than in the poor handoffs between the Minneapolis-based tech- ▶

600 DPI Color capable on any office paper or transparency.

5¢ A typical color page. Call for print samples.

REE Black ink's free, so it practically ısoletes your b&w laser.

6 PPM Twice as fast as any competitor's desktop color laser.

15 Backed by 15 years of award-winning color expertise.

World's fastest workgroup color is now only $3,495.

Now the incredible speed and brilliant color of Tektronix are also matched in economy and price. The award-winning, multi-platform Phaser® 350 costs less than any laser-class, network color printer. No wonder, at over $500 million in color printing revenue, Tektronix sells more workgroup color printers than anyone.

Call 800/835-6100, Ext. 1355. http://www.tek.com/CPad?1355

Tektronix

Phaser 140 | Phaser 240 | Phaser 440 | Phaser 350 | Phaser 550 | Phaser 480X | Phaser 300X

© 1996 Tektronix, Inc. All rights reserved

Circle 124 on reader service card

intel inside pentium PROCESSOR

The ultra-value Pentium® processor-based PC.

- Intel® 100, 120 or 133 MHz Pentium processor
- 8 or 16MB RAM standard, expandable to 192MB
- EDO RAM
- 256KB burst synchronous cache
- 1080MB** high-performance Enhanced-IDE hard drive
- 64-bit PCI integrated graphics accelerator with 1 or 2MB video RAM software selectable
- Flash BIOS for easy upgrade
- Windows® 95
- Preloaded HP DMI Desktop Management Interface
- Free three-year limited warranty for parts and labor[1]

from $1,110*

HP Vectra VE

Leading Pentium processor/PCI performance at an affordable price.

- Intel 100, 120, 133, 150, 166 or 200 MHz Pentium processor
- Desktop and minitower packages
- 256KB burst synchronous cache
- 8–16MB EDO RAM, expandable to 128MB
- PCI/ISA architecture
- 1280MB** high-performance Enhanced-IDE hard drive
- PCI integrated graphics accelerator and 1MB DRAM standard, upgradable to 2MB or Matrox Millenium PCI graphics card with 3D acceleration and 2MB WRAM, upgradable to 8MB
- Flash BIOS for easy upgrade
- Full plug-and-play capability
- Windows 95
- Preloaded HP DMI Desktop Management Interface
- Free three-year limited warranty for parts and labor[1]

from $1,316*

HP Vectra VL

The most powerful value PC for advanced users and 32-bit applications.

- Intel Pentium Pro 180 or 200 MHz processor with 256KB integrated cache
- Choice of desktop or minitower
- 16 or 32MB EDO RAM, expandable to 192MB
- PCI/ISA system architecture
- 64-bit PCI integrated graphic accelerator or Matrox Millenium graphics card on minitowers
- 1.2 or 2.5GB Enhanced-IDE hard drive
- 3 available PCI slots for maximum expansion
- 8X CD-ROM on most models
- Flash BIOS for easy upgrade
- Windows 95 or Windows NT® 3.51 with free upgrade to Windows NT 4.0
- Windows 95 and Windows NT Soft Power Down
- Free three-year limited warranty for parts and labor[1]

from $2,419*

HP Vectra VA

[1]In Canada, call 1-800-387-3867. *Average U.S. street price. Monitor not included. **Other capacities available. HP Vectra PCs come with MS-DOS® 6.2 and MS Windows for Workgroups 3.11; or Microsoft® Windows 95 or Windows NT included. [1]First year, on-site, 24-hour, next-day service. Second and third year, return to dealer. Microsoft, MS-DOS, Windows and Windows NT are U.S. registered trademarks of Microsoft Corporation. Pentium and the Intel Inside logo are registered trademarks of Intel Corporation. ©1996 Hewlett Packard Company PPG430

The best combination of performance, manageability and networking.

- Intel Pentium Pro 180 or 200 MHz processor with 256KB integrated cache
- 16 or 32MB EDO RAM, expandable to 192MB
- PCI/ISA system architecture
- High-performance Matrox Millenium PCI graphics card with 2MB upgradable to 4 and 8MB
- 1.2 or 2.5GB Enhanced-IDE hard drive
- Integrated audio with ergonomic volume control and built-in speaker
- 8X CD-ROM
- Integrated Ethernet 10Base-T controller
- LAN remote Power ON
- Flash BIOS for easy upgrade
- Windows NT 3.51 with free upgrade to Windows NT 4.0
- Windows NT Soft Power Down
- Free three-year limited warranty for parts and labor[1]

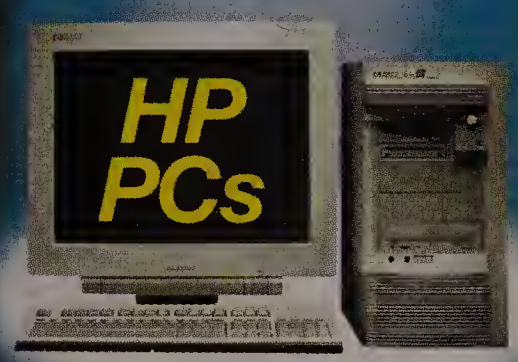
from $2,696*

HP Vectra XA

The ultimate PC.

- Intel Pentium Pro 180 or 200 MHz processor with 256KB integrated cache
- Supports dual processing with secondary Pentium Pro processor socket
- 128-bit high-performance memory architecture
- 32MB ECC DIMM memory standard, expandable to 512MB with 8 DIMM memory expansion slots
- PCI integrated Ultra SCSI Fast 20 interface with 20MB/s throughput
- 2GB** SCSI-2 high-performance hard drive
- PCI Matrox Millenium graphics card with 3D acceleration and 2MB WRAM
- 7 mass storage shelves (5 front accessible)
- 6 expansion slots: 3 PCI, 1 PCI/ISA combo and 2 ISA
- 10Bt/100Bt AnyLAN selectable PCI NIC with up to 100 Mb/s throughput
- Integrated 16-bit audio and 8X CD-ROM
- Windows NT 3.51 with free upgrade to Windows NT 4.0
- Free three-year limited warranty for parts and labor[1]

from $4,354*



HP Vectra XU

IBM and Compaq can't be happy.

For more information or the name of your nearest HP reseller, call 1-800-322-HPPC, Ext. 1704.[1] Or visit us at http://www.hp.com/go/vectra.

HEWLETT® PACKARD

DON'T JUST READ...

Dig Deeper!
Listen!
Interact!

Check out PC World's award-winning Web site- an interactive gateway to even more of the powerful PC-buying and how-to information you're looking for.

http://www.pcworld.com

FREE offer! Register with PC World Online, and each day we'll e-mail you the computing tips of your choice absolutely FREE! Select from:

- Microsoft Windows 95
- Netscape Navigator
- Shareware Picks
- Microsoft Office
- Macintosh
- Microsoft Publisher
- Lotus Notes
- Lotus SmartSuite
- Microsoft Windows NT
- Cool Web Sites
- Bugs & Fixes
- Computer Industry Gossip
- Microsoft Internet Explorer
- *Tangled Web* (Soap Opera)
- PC Games
- Internet Daily News

We'll also keep you abreast of cool new content, features and contests through our weekly e-mail newsletter, PC World Watch.

Register today at:

http://www.pcworld.com/tips4free

THE ONLINE OPTION

Can't get through to Micron by phone? No kidding. Assuming you've still got use of a modem-equipped computer, here's how to reach the company online:

- **Internet:** Check out support at http://www.mei.micron.com/services/services.htm. From there you'll get access to the company's file library for recent driver updates, patches, and so forth, as well as a list of frequently asked questions. You can also e-mail tech support at techsupport.meic@micron.com.
- **CompuServe:** Go micron. Two Micron techs seem to monitor this forum regularly, as do several knowledgeable Micron owners, who are more than willing to offer advice.

nical support staff and the customer service department in Nampa, Idaho. "I was always waiting for something to be faxed from Minneapolis to Idaho," says Glorioso. I know what he means: So was I.

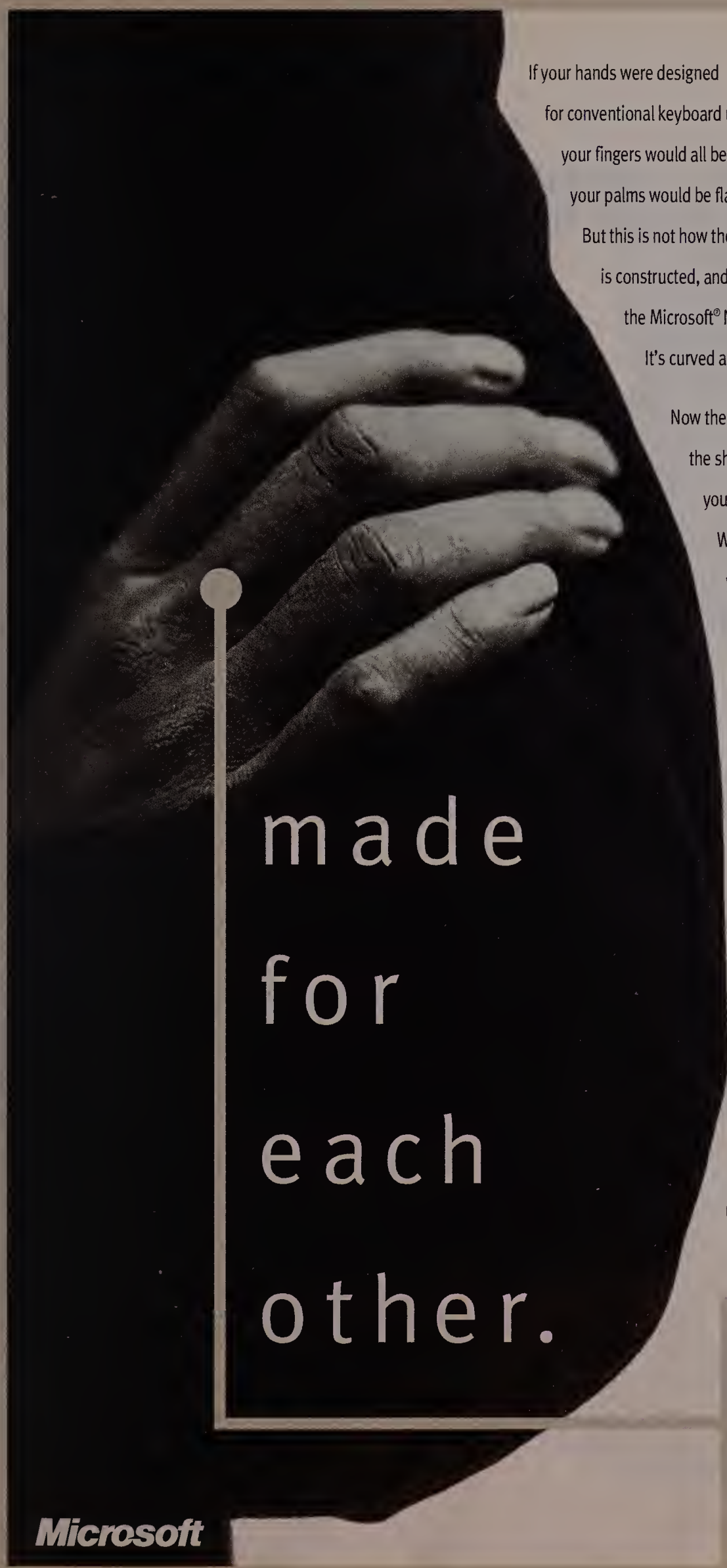
THE PRICE OF FREE SUPPORT

Meanwhile, what's Micron doing to fix its problems? "We're hiring new techs as fast as we can," says Delaney. But she adds that it takes about three months before a new hire can answer most customer questions quickly and independently. Micron has also revamped its knowledge base—the database tech support reps rely on to diagnose customer problems. But all these changes take time, cautions Delaney, who also points out that Micron charges nothing for technical support. "We're one of the few companies left that is doing that," she notes.

Free support is commendable, but it's not much help if you can't get through.

Let's hope Micron manages to escape the service quagmire it's trapped in. Quickly.

Send me your comments on customer service problems or any other topic you'd like to see covered in Consumer Watch *to consumerwatch@pcworld.com. Roberta Furger is a* PC World *contributing editor and author of the forthcoming* CyberGirls *(Warner Books, 1997, 212/522-7200).* ■



If your hands were designed
for conventional keyboard use,
your fingers would all be the same length,
your palms would be flat, and your wrists bent.
But this is not how the human hand
is constructed, and this is not how
the Microsoft® Natural Keyboard® is designed.
It's curved and flexed and contoured like you.

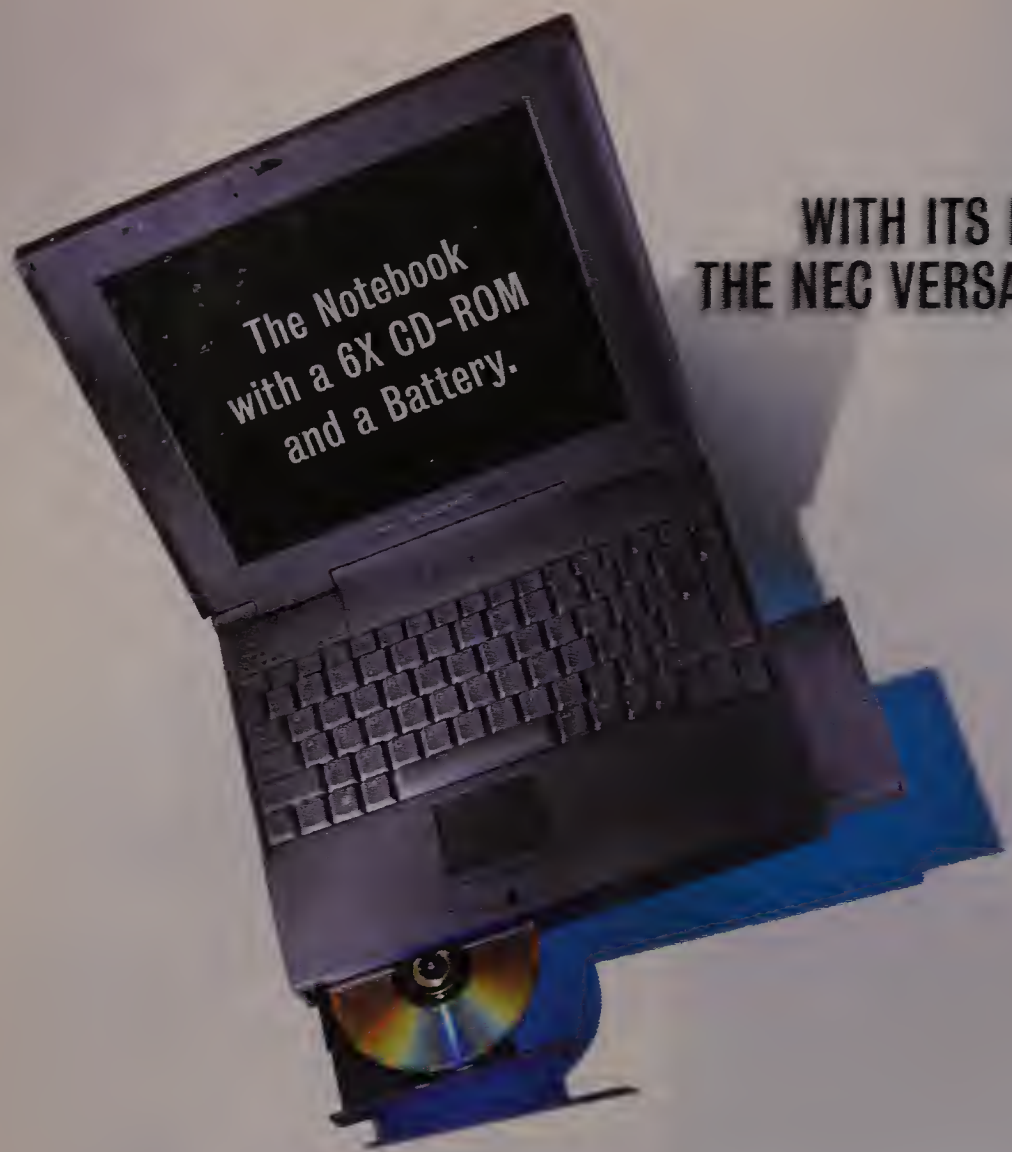
Now the shape of your hands defines
the shape of the keyboard,
you are left working in comfort.
With your hands ergonomically poised,
you compose with greater ease.
You are naturally better able to perform.
Nothing gets between you and your ideas.
You are prepared
to get something accomplished.
Take advantage
of special keystroke timesavers
built-in to simplify your most repetitive tasks.
In other words, glide through your work,
and even more of it without feeling the pinch.

The Microsoft Natural Keyboard,
it will feel different, because it is.
Then it will feel very right, because it is.
Now go and put your hands on one
because it's the feeling of each and every key
under your fingers that will persuade you.

Microsoft

Where do you want to go today?® www.microsoft.com/hardware/

© 1996 Microsoft Corporation. All rights reserved. Microsoft, Natural Keyboard and *Where do you want to go today?* are registered trademarks of Microsoft Corporation.



WITH ITS INTERCHANGEABLE COMPONENTS, THE NEC VERSA 2400 IS ACTUALLY 4 NOTEBOOKS IN 1.

Just slip the 6X CD-ROM drive and battery into the two modular VersaBay™ slots, and your NEC Versa® 2400 changes into a state-of-the-art multimedia tool for brilliant on-the-road presentations.

*NEC Versa 2400 Series, starting at $1999**

Intel Pentium® Processor up to 133MHz

Up to 16MB EDO DRAM

Up to 1.08GB hard drive

11.3" DSTN color display

*Two VersaBay slots***

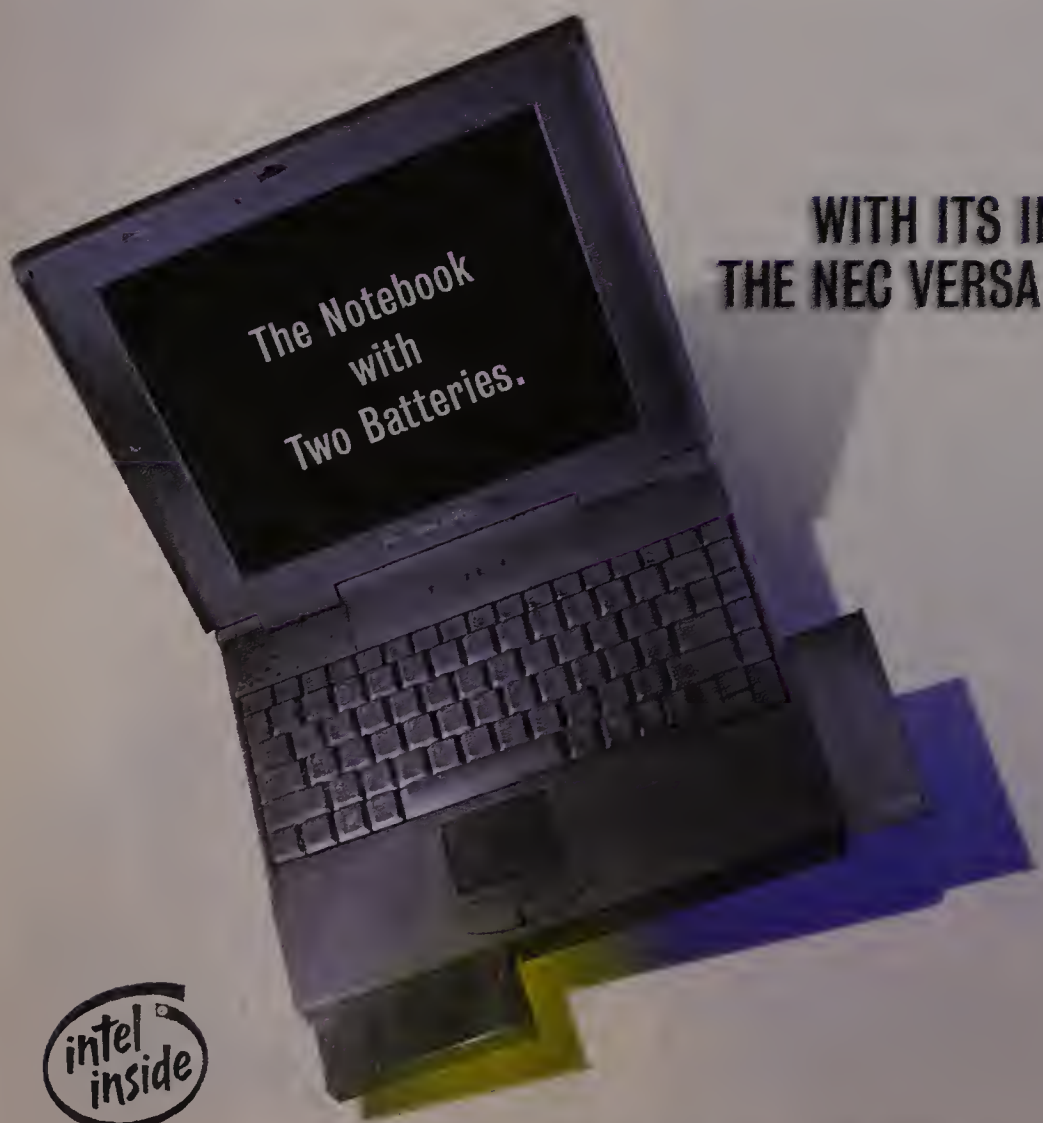
Two high-output stereo speakers

Two PC Card slots

MPEG video

SEE, HEAR AND FEEL THE DIFFERENCE.™

NEC



WITH ITS INTERCHANGEABLE COMPONENTS, THE NEC VERSA 2400 IS ACTUALLY 4 NOTEBOOKS IN 1.

Just insert both batteries† into the two modular VersaBay slots, and your NEC Versa 2400 becomes a notebook with enough juice for up to 6 hours of nonstop computing.

*NEC Versa 2400 Series, starting at $1999**

Intel Pentium® Processor up to 133MHz

Up to 16MB EDO DRAM

Up to 1.08GB hard drive

11.3" DSTN color display

*Two VersaBay slots***

Two high-output stereo speakers

Two PC Card slots

MPEG video

SEE, HEAR AND FEEL THE DIFFERENCE.™

NEC

intel inside pentium® PROCESSOR

©1996 Packard Bell NEC, Inc. For more information call 1-800-NEC-VERSA. Visit our website at http://www.nec.com. Versa is a U.S. registered trademark of NEC Technologies, Inc. used under license by Packard Bell NEC, Inc. Other brand and product names may vary. The Intel Inside logo and Pentium are registered trademarks of Intel Corporation.

WITH ITS INTERCHANGEABLE COMPONENTS, THE NEC VERSA 2400 IS ACTUALLY 4 NOTEBOOKS IN 1.

[illegible]

[illegible]

NEC

WITH ITS INTERCHANGEABLE COMPONENTS, THE NEC VERSA 2400 IS ACTUALLY 4 NOTEBOOKS IN 1.

[illegible]

[illegible]

NEC

Circle 201 on reader service card

Successfully Migrating to

Corporate America is fast embracing Windows NT workstation for its desktop computing as it seeks a true multitasking, robust, 32-bit OS with reliability, security, and high performance. The Pentium Pro, offering superior speed and performance, is far and away the preferred platform for NT. These were among the key findings of IDC's recent global survey of 1,500 corporate enthusiastic NT adopters and active evaluators.

International Data Corporation (IDC), the world's leading information technology (IT) research firm, recently surveyed 1,500 medium-sized and large corporations around the world about their advanced desktop PC usage and plans via in-depth telephone interviews. Primarily, the research analyzed how corporations are currently using and adopting advanced Windows NT/Pentium Pro systems and what users found as key drivers and constraints. The study focused on advanced adoption so that organizations adopting less than 10% NT systems among their total systems, within the next two years, were excluded from the survey.

The market momentum for NT/Pentium Pro systems will intensify over the next 3–18 months, especially among U.S. corporations. Key drivers for this upward migration include the accelerated price/performance improvements of the Pentium Pro; the increasing availability of 32-bit applications; and recent release and success of Windows NT Workstation 4.0. IDC predicts 1998 to be the pivotal cross-over year when U.S. Pentium Pro Processor PC U.S. sales will exceed Pentium Processor PCs overall, and when NT will surpass Windows 95 on desktops in large corporations.

Why Upgrade to Advanced PCs?

Corporate PC users are constantly seeking better CPU performance, more memory, faster data access times, and more powerful OS and application suites. In the late 1990s, technology continues t accelerate with more intensive requirements due to the increase in th size of applications and graphics-intensive files; expanded multimedi data types (color images, audio, and full-motion video); the inclusio of more software (Web browsers, utilities); and the constant IT man dates to cut costs and improve productivity. In addition, the tremen dous growth in the Internet, Web, and corporate intranets is bringin ever-greater amounts of data to the desktop.

Recent and unprecedented price/performance improvements i advanced PC systems have whetted organizations' appetites. IDC P pricing research indicates the cost of Pentium Pro systems will declin a full one-third to nearly half (or 33–47%) from the beginning to th end of 1996, depending on chip speed. As an industry example, con sider the advanced desktop offerings in late 1994 vs. late 1996 fron AST Computer. AST's high-end brand series has dropped in price b more than one-third, from about $4,300 to about $2,850 in estimate street price, while the overall performance offering has more than dou bled. In short, there has never been a time in which corporations hav needed advanced desktop PCs more, nor a time in which cost justifica tion for upgrading has been stronger for the business enterprise.

Pentium Pro—Platform for and to the Future

The Pentium Pro, Intel's sixth generation microprocessor famil released in late 1995, was specifically designed to optimize the perfor mance of 32-bit code while maintaining backward compatibility wit previous x86 code. In essence, the chip is a bridge between today' world, which predominantly uses 16-bit OS (Windows 3.X) an applications, and the emerging world of 32-bit OS (NT, Windows 95 and applications, which is fast becoming the industry desktop stan dard. The Pentium Pro also offers unparalleled speed and performanc through its superscalar and superpipeline design; Intel's "Dynami Execution," and its L2 "cache on-board" dual-chip module.

As prices further decline, IDC predicts that demand for Pentium Pr PCs will increase significantly, especially in the corporate environ ment. Current street prices for NT/Pentium Pro systems have no fallen to less than $3,000—within the range of most corporate I budgets. Accelerating price competition and expanded product selec tion will continue through 1997, which will further fuel the market IDC anticipates Pentium shipments will peak in 1996, and the Pro with 15 million units, will surpass Pentium sales (13.9 million units as the dominant PC platform in the total U.S. market by 1998 (se Figure 1).

The Corporate Move to Windows NT

Migration to the 32-bit desktop enables true multitasking, improve stability, virtual memory, multiprocessing, and robustness. More tha half (53%) of those IDC surveyed currently do 32-bit applicatio development. Key drivers of 32-bit adoption cited by the IDC use base included new application availability, price declines, performanc gains, and the success of NT 4.0. Within two years, three-quarters o all internal PC application development will be 32-bit.

Key Advanced PC Study Findings

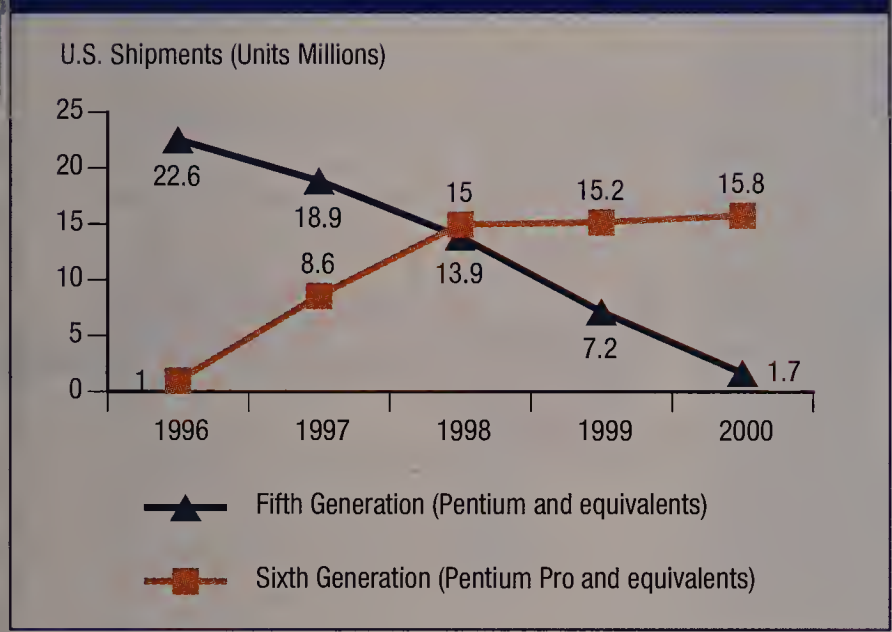
- By YE 1997, half said at least 50% of new PC purchases will be Pentium Pros.
- Corporate user plans by late 1997 include the following:
  - 150% increase in Windows NT
  - 50% decrease in Windows 3.X
  - 50% increase in Windows 95
- Within two years, the majority of internal application development will be 32-bit.
- Reliability, security, and performance are top reasons for choosing NT over Windows 95.
- Twenty-five percent of respondents will gradually roll out NT company-wide; 50% will roll out NT selectively.
- Key NT applications are general office, software development, technical/engineering, customized business, and multimedia.
- Performance and speed are top benefits of running NT on Pentium Pro PCs.
- Cost, hardware requirements, and incompatibility with existing software/peripherals key barriers to adoption.

Special Advertising Section

Sponsored by AST COMPUTER

Next Generation PCs

Figure 1 – Pentium vs. Pentium Pro Processor Shipments



Again, IDC user research bears out corporate America's preference of Windows NT over Windows 95 or any other OS. Corporate users surveyed included in their 12-month plans a 150% increase in the use of Windows NT. They saw a decrease of Windows 3.X or Windows for Workgroups use by about 50% and an increase of Windows 95 by only 50%. Users cited reliability, security, performance, and robustness, in that order, as the most important reasons for choosing Windows NT over Windows 95. The primary departments driving advanced desktop computer system purchases among IDC respondents are MIS/DP, engineering, and R&D-traditional leading technologists, as might be expected. Somewhat surprising, are the current applications users identified running under NT such as general office automation packages (word processing, e-mail, spreadsheets) or today's general mainstream desktop applications (see Figure 2).

Among corporations polled, the Pentium Pro was also the preferred platform to run NT. Fifty percent of respondents stated that at least half of all their new PC purchases will be Pentium Pro systems by the end of 1997.

The Call to Action

The decision of when and how to upgrade an IT infrastructure is difficult and complex. Hesitating can be even more hazardous, possibly leading to forfeited opportunity costs and lost productivity. As we approach 1997, it is clear that the U.S. corporate migration process to NT/Pentium Pro PCs is far beyond initial assessments.

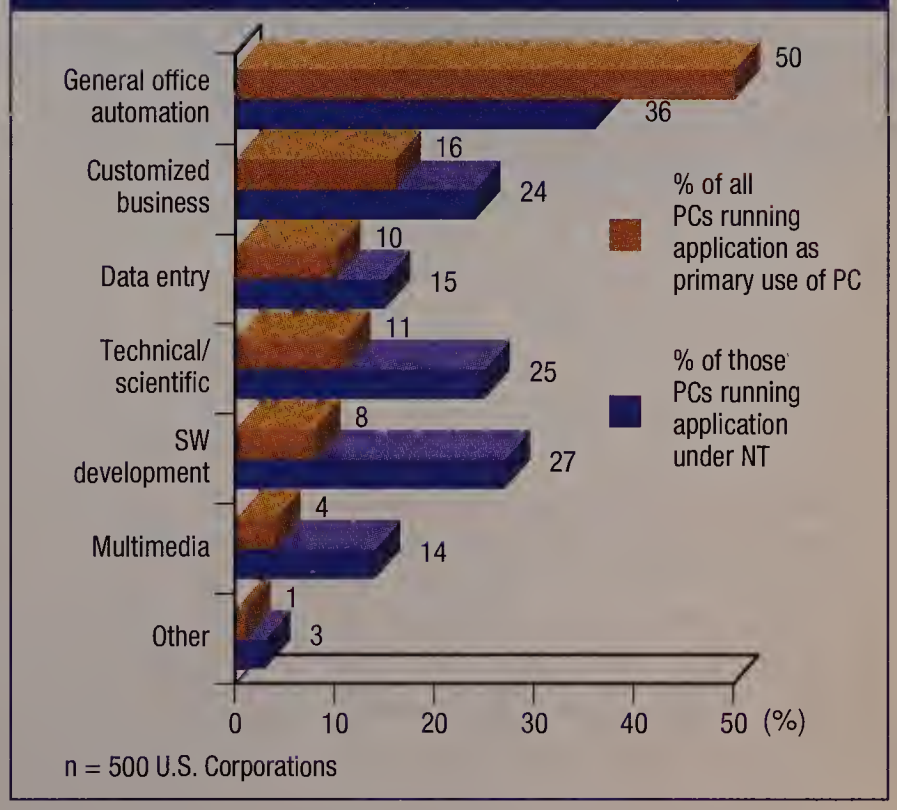
Perhaps the only thing as important as choosing the right advanced PC is choosing the right vendor partner behind it. The top criterion among the survey respondents were price/value and technical support. IDC recommends users to look for PC vendors that push the price performance ratios and offer the most complete total value package. Closely examine what prospective vendors include in:

- Hardware (components, configurations, investment protection);
- Cost of ownership (virus protection, data and system management, real time diagnostics);
- Productivity enhancement (Internet/intranet, utilities);
- Vendor viability;
- Product quality and price/performance.

IDC predicts that 1998 will be the pivotal cross-over year when Pentium Pro outstrips Pentium U.S. sales overall, and NT surpasses Windows 95 on desktops within large corporations.

Given its total value, performance benefits, and headroom, the time for serious consideration of NT is here. The collective experience and insights of 1,500 corporate users—senior IT managers already in upward PC migration, can greatly benefit an organization's information technology design and planning.

Figure 2 – Current PC Applications, Share for NT PCs



This Insight was written independently by IDC and sponsored by AST Computer. For a complimentary copy of IDC's full White Paper on migrating to Next Generation PCs (Asian, European or U.S. versions available), please call AST at 1-800-447-0023 x 100 or check the AST Web site at http://www.ast.com

All trademarks are the property of their respective companies

Circle 6 on reader service card

Performance. Art.

Introducing Studioworks, the new generation of computer displays from

Studioworks

GoldStar. On the performance side, Studioworks delivers a clearer, sharper image and more accurate color, edge to edge. Plug and play compatibility with Windows® 95 sets optimal image characteristics automatically*. A compact design fits more screen into less space. And new digital on-screen controls make precise, custom adjustment simpler. For the artist in you, Studioworks displays the fine details and the subtle tones and textures, to give your vision that added brilliance. The new Studioworks series from GoldStar.

They're more than monitors, they're masterpieces. Ask for them at your local computer retailer.

S T U D I O W O R K S

MODEL	SCREEN	PITCH	MAX. FLICKER-FREE RESOLUTION
20i	20" (18.76" VIS)	.28mm dot	1280x1024 @ 76 Hz NI
78i/78m†	17" FST (15.7" VIS)	.26mm dot	1280x1024 @ 76 Hz NI
76i/76m†	17" FST (15.7" VIS)	.28mm dot	1024x768 @ 80 Hz NI
56i	15" FST (13.6" VIS)	.28mm dot	1024x768 @ 80 Hz NI
56m†	15" FST (13.6" VIS)	.28mm dot	1024x768 @ 80 Hz NI

† Built-in stereo amplifier and speakers. * Requires DDC compatible video card.
Microsoft and Windows 95 are registered trademarks of Microsoft Corporation.

Designed for Microsoft Windows 95

GoldStar

LG Electronics

LG Electronics U.S.A., Inc.
1000 Sylvan Avenue, Englewood Cliffs, NJ 07632 (201) 816-2000

3 YEAR LIMITED WARRANTY

Circle 96 on reader service card

Tiger ate my computer? ◆ Gateway's modem dilemma ◆ Kudos for askSam Systems

THE WAITING GAME

I SAW AN ADVERTISEMENT in *PC World* last June for a Cyrix build-it-yourself 6x86 kit, so I ordered a Cyrix P166+ kit from TigerDirect. I was told the kit would ship the next day, but it did not arrive until nearly four weeks later. I installed the hard drive, memory, and sound card from my old PC into the Cyrix PC, but the new system locked up and gave me a boot-disk error message. I called the third-party technical support provider in Canada, called Aegis. The technician took me through various checks and diagnostic tests. Still no luck. So I was promised a new motherboard; but four more weeks have gone by, I have a PC that still won't work, and I have not heard from Tiger.

Sam Arbuckle, Pensacola, Florida

Editor's response: We received eight other complaints from disgruntled consumers about Miami, Florida-based TigerDirect. The two most common problems: long delays in shipment of products and a slow turnaround on exchanges. We forwarded the complaints to Tiger and received a response from Adria Wood, customer service manager. Wood apologized for the slow service, and Tiger issued a return merchandise authorization number directly to Arbuckle. At press time Arbuckle confirmed that he had received a replacement unit from Tiger and it was working fine. His only gripe is about the two-plus months it took to resolve a problem that could have been solved in one day.

Wood says Aegis has handled technical support for the Cyrix 6x86 line since the products were introduced in May 1996. "Aegis was bombarded with calls about our new product, resulting in slow turnaround times and poor communication with Tiger," says Wood. Late last summer, Aegis hired additional service staff, installed a new telephone system, and upped its tech support hours. Aegis tries to return all calls within 48 hours, according to Wood. If that doesn't happen, however, you can now call TigerDirect directly at 800/888-4437, and Tiger will contact Aegis on your behalf.

HOW FAST IS MY MODEM?

I PURCHASED A P5-133XL from Gateway 2000 in November 1995 and have been having trouble with my modem ever since. It is supposed to be a 28.8-kbps modem, but I get only a 14.4-kbps connection with Wavenet, my Internet provider. I have spent hours on the phone with technicians from both Wavenet and Gateway. I've reinstalled the modem (as instructed by a Gateway technician) to no avail. The fastest connection I can get is still only 14.4-kbps. I contacted the phone company, which confirmed that nothing is wrong with the phone line. Strangely, Windows 95 identified the modem as a 14.4-kbps model. Is the modem faulty, or is it actually a 14.4-kbps modem and not 28.8 kbps as marked?

Sherri Camp, Central Point, Oregon

Editor's response: We forwarded Camp's complaint to Gateway, which contacted her, checked a few software settings, and promptly dispatched a replacement modem.

The old modem was sent back to Gateway, where it was tested and found to be defective, according to Carol Deeds, an executive response specialist. Camp confirms that the replacement modem works fine.

Our advice? If you experience difficulties connecting at high speeds, talk with the modem manufacturer and also contact your Internet provider and phone company for troubleshooting assistance.

ENLIGHTENED SERVICE

I WANT TO SHARE the experience I had with askSam Systems, makers of askSam Professional. This personal information manager and the customer support that goes with it are exceptional. At one point, the program's index feature kept crashing my system. askSam sent a patch immediately, and now the feature works perfectly. When I call tech support, I never get dumped into one of those endless voice mail mazes—I always reach a live person. In this age of large corporations, it's really cool to know there's one company out there with this level of customer relations.

S. Murugananda, Buckingham, Virginia

Think you've gotten a raw deal—or a great one? PCW Advocate *wants to hear the details at advocate@pcworld.com. We'll investigate complaints and publish items of the broadest interest. Aoife McEvoy is an assistant editor for* PC World. ■

ILLUSTRATION: MICHAEL WITTE; ICON: JEFFREY PELO

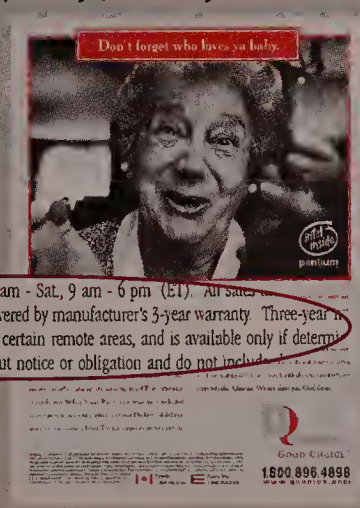
THE FINE PRINT

ON-SITE SERVICE: DON'T COUNT ON IT

THIS QUANTEX AD boasts a new "Quantex Care Package." The highlight: a three-year "limited" warranty on the entire product line with one year of on-site service.

1. Although on-site service is part of the standard package, it isn't guaranteed. If you live in a remote area—defined as 100 miles from a Quantex service center or determined by your zip code—you have to send or carry your PC in for repairs. There are several hundred service centers across North America, most of them in cities with populations of 20,000 or more. Certain isolated pockets of Montana, Wyoming, Alaska, and northwest Canada are ineligible for on-site service.

2. Even if you live or work in a service area, there's no guarantee the company will dispatch an on-site technician. Incidents are reviewed case by case to ensure that all other solutions and "walk-throughs" over the phone have been exhausted.

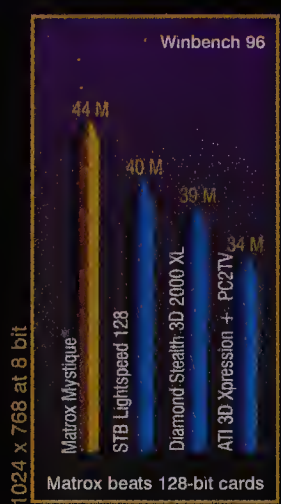


WICKEDLY FAST 3D, WINDOWS & VIDEO

MATROX MYSTIQUE®

From the company that consistently delivers high performance graphics accelerators, comes the next wave of graphics innovation for your business and home PC.

Matrox Mystique's state-of-the-art technology combines the new MGA-1064SG 64-bit graphics chip, an integrated high speed 170 MHz RAMDAC and powerful SGRAM memory for mind altering performance.



An ideal solution for both office and home, Mystique's all-in-one solution delivers outstanding acceleration for general Windows applications, multimedia CD ROM titles, 3D texture mapped games and DOS games.

From now on your Windows 95 applications will explode onto your screen at over 44 million Winmarks and at resolutions as high as 1600 x 1200. You'll also play back TV quality MPEG and AVI video clips at a smooth 30 frames per second.

And unlike many of the competition's 3D *decelerators*, Mystique delivers true 3D game power with the highest frame rates possible and a unique set of 3D features not available with other products. You'll also get blazing fast DOS game acceleration with Mystique's superior 32-bit VGA engine.

By adding on the Matrox Rainbow Runner series of upgrades, you'll discover an exciting new universe of digital video and make obsolescence nightmares a thing of the past (Q1 '97). You'll be able to send video over the internet, play PC games on a big screen TV, decode MPEG video in hardware and watch TV on the PC! Explore all the possibilities at incredibly low prices.

Satisfy your desire for the fastest, most complete 3D, Windows and video accelerator available. Discover the plug and play world of *Matrox Mystique*. Starting at only $179 (ESP 2 MB, PCI bus)

	Direct 3D Tunnel Test	Direct 3D Game Speed	Full PCI Bus Mastering	H/W True Perspective Correct Texture Mapping	8-bit Palettized Textures	3D Z-Buffering	Memory Upgradeable	1600 x 1200 Non-Interlaced
Matrox Mystique	55	30	✔	✔	✔	✔	✔	✔
ATI 3D Xpression+ PC2TV	35	16				✔	✔	✔
Diamond Stealth 3D 2000XL	23	14		✔		✔		

matrox

1-800-362-9352 http://www.matrox.com/mga

Matrox Graphics Inc. 1025 St. Regis Blvd. Dorval, Quebec, Canada, H9P 2T4 Tel: 514-969-6320 Fax: 514-969-6363 In Quebec, call: 514-969-6330

All Winbench 96 and Direct 3D tests conducted by Matrox Graphics Inc. on a Gateway P5-166 configured with Intel P5-166Mhz, 16MB of EDO RAM with 256K cache. Matrox Mystique, Diamond Stealth 3D 2000XL and ATI 3D XPRESSION+ PC2TV were configured with 2 MB of memory for the PCI bus using driver releases 3.16, 4.03.00.2101 and 3.0 respectively for Windows 95. STB Lightspeed 128 was configured with 2.25 MB of memory using driver release 1.22 M. WinBench 96 1.0 tests conducted at 1024 x 768 resolution with 8 bit color at 75Hz refresh using large fonts under Windows 95. Monster Truck Madness Microsoft Corp. Monster Truck Madness was tested in first person view, with dashboard off, map off, sky texture on, horizon on, smoke effects on, image quality high, texture normal, scenery complex, shadow normal, smoothing on, tire tracks and particles. Test conducted at full screen 640 x 480 x 16 bit. Score indicates maximum frame rate. Direct 3D tests done using Tunnel from the DirectX 2.0 SDK. Diamond Stealth 3D 2000XL and ATI 3D Xpression+ PC2TV tests were conducted at 512 x 384 x 16 bit while Matrox Mystique tests were conducted at 640 x 400 x 16 bit based on Gouraud shaded, perspective correct textured, point sampled, 16-bit per pixel color, dithered rendered polygons.

Circle 143 on reader service card

MATROX
MGA
new
low price of
$179
(ESP)
FREE SOFTWARE BUNDLE
(AVAILABLE WITH RETAIL VERSION ONLY)
DESTRUCTION DERBY 2
PSYGNOSIS
MECHWARRIOR 2
ACTIVISION
SCORCHED
CRITERION
MPEG
VREAM
WIRL
COMPUSA
THE COMPUTER SUPERSTORE
BEST BUY
MICRO CENTER

Price and Performance of Your Next Computer System Just Got Better...

With over 12 years of experience, we know what you look for in a PC system. From multimedia to professional to workstation PCs, ProGen® systems feature the latest technologies at the best prices. And of course, you can expect equally solid service and support from ProGen. ProGen ProCare features a 3-year limited warranty and 1-year on site service*. We think you'll agree: feature for feature, dollar for dollar, ProGen Systems offers you the best computer value anywhere. To find out more, call a ProGen consultant today. Or, come and visit us on the web at: **http://www.progen.com.**

Add a **Subwoofer sound system only $79** with any ProGen System purchase

Discover MPEG II 133MHZ

- **Intel PCIset Based Systemboard**
- 512K Pipelined Burst Coche
- 16 MB EDO RAM
- 1.6GB Fost EIDE Hord Drive
- **ProGen® GOLD 64V+ 2 MB EDO (S3 Trio 64V+), MPEG, Cinepak**
- WovePloyer 32PnP sound cord
- 33.6kbps FAX/Modem w/Voicemoil
- 8X EIDE CD-ROM Drive
- 1.44 MB 3.5" Floppy Disk Drive
- 4-device Bus Mostering Enhonced IDE Controller
- 15" (13.8" v.i.s.) .28dp PnP monitor
- Windows 95 Enhonced Keyboord
- Genuine Microsoft Mouse 2.0
- Microsoft Windows 95 CD & Monuol
- 80W PMPO Amplified Stereo Speokers
- CD Softwore Bonus Pok & Microphone w/stond
- **ProGen ProCare Warranty**

intel inside pentium PROCESSOR

Top 20 PC World *Nov. '96*

Immediate Delivery! **$1449**

120 MHz	$1389	166MHz	$1649
150MHz	$1529	200MHz	$1799

* Upgrode to Panasonic 15" .27dp odd $35.

Upgrode from ProGen® GOLD 64V+ 2MB to ProGen® GOLD 3D (S3 Virge) 4MB add $60

Nova II

- **Genuine Intel Performance/VS Systemboard**
- 256K Internol L2 Coche
- Foster PCI 2.1 compliont & EDO copoble 82440FX PCIset
- **32 MB EDO RAM** (up to 128 MB)
- Creotive Lobs SoundBloster 32 PnP
- 1.44 MB 3.5" Floppy Disk Drive
- 33.6kbps FAX/Modem w/Voicemoil
- **New 12X EIDE CD-ROM Drive**
- ***PC Magazine Editor's Choice!* Panasonic S17 .27dp 17" PnP Monitor**
- **New MS-Windows® NT Workstation v4.0**
- 104-key Windows 95 Enhonced Keyboord
- Genuine Microsoft Mouse 2.0
- 80W PMPO Amplified Stereo Speokers
- **ProGen ProCare Warranty**

intel inside PENTIUM® PRO PROCESSOR

$2549 180MHz EIDE

NEW!

- **Large Capacity 3.1GB Fast EIDE Hard Drive**
- **Matrax Millenium 3D 1600x1200, 2MB WRAM**

$3249 200MHz SCSI

NEW!

- **Large Capacity 3.2GB Ultra SCSI3 Hard Drive**
- Adaptec 2940 PCI Ultra SCSI Adapter
- **Matrax Millenium 3D 1600x1200, 4MB WRAM**

Leasing rates are available.

Technical Support: 1-888-777-5501

1-800-848-1356

Customer Service: 1-800-848-8767

We accept VISA, M/C, Discover, & Americon Express

ProGen® SYSTEMS
A division of ProGen® Technology Inc.

ProGen® Technology, Inc. 15501 Redhill Avenue, Tustin, CA 92780 Ph: 714/566-9200 Fax: 714/566-9267 BBS: 714/566-9255 E-Mail: webmaster@progen.com Web: http://www.progen.com

* On site service is based on the discretion of ProGen technicol support. Leasing Rote will vary depending on state legislotion, ond is intended for business or corporate use only. 30-day money-back Guorontee(shipping cost not included)

Sales Hours
M-F, 6:30 A.M. - 7:00 P.M. PST
Sat., 9:00 A.M. - 3:00 P.M. PST

Customer Service/Tech Support Hours
M-F, 8:00 A.M. - 5:00 P.M. PST

Circle 184 on reader service card

©1996 ProGen® Technology, Inc. Intel Inside and Pentium Processor logo are registered trademarks and the Pentium Pro Processor logo is a trademark of Intel Corporation. All other trademarks are the property of their respective owners. Prices are subject to change without notice.

Windows NT 4.0 patch ◆ Interim releases for Navigator and IE ◆ Smoother Descent

Microsoft, Netscape Fix Buggy Browsers

IF YOU'RE ONE of the zillions who downloaded Netscape Navigator 3.0 last August, you may have noticed that your .wav files don't warble and your Java doesn't jive. In the race to beat Microsoft's Internet Explorer to the Web, the final versions of Navigator 3.0 and Navigator Gold 3.0 shipped with several irritating, though nonlethal, bugs, which have been fixed in version 3.01. In both programs, the new version downloads and plays streaming audio files without requiring you to click on a start button. This interim release also solves a similar problem with some animated GIF files. In addition, it protects against nuisance HTML code that can cause Navigator and even Windows to freeze under previous versions, and fixes several glitches and potential security problems with Java applets.

As we went to press, both 16- and 32-bit versions of Navigator 3.01 and Gold 3.01 were available from Netscape's FTP server. For all Navigator 3.01 versions, check ftp://ftp.netscape.com/pub/navigator/windows/. By the time you read this, these versions may also be available at http://home.netscape.com/comprod/mirror/client_download.html.

Not to be outpatched, Microsoft almost simultaneously released Internet Explorer 3.01, which fixes problems that the first patch missed (see November 1996 *Bugs and Fixes*). The new version beefs up the program's security, fixes bugs with Java applets as well as with the America Online and CompuServe versions of the browser, and adds support for World Wide Web features in Microsoft Office 97. For additional information about 3.01's fixes, check http://www.microsoft.com/ie/ie3/newversion.htm#NEW301. If you'd like to read a list of outstanding problems, take a look at http://www.microsoft.com/IESupport/content/Issues/. You can download the Windows 95 and the Windows NT 4.0 versions of Internet Explorer 3.01 from http://www.microsoft.com/ie/download/.

WINDOWS NT 4.0 SERVICE PACK 1

IN MID-OCTOBER, with Windows NT Workstation and Server barely out of the chute, Microsoft released Service Pack 1. In addition to the cached write bug described in last month's column, the patch collection squashes nine other bugs, including fixes for sporadic data corruption in memory (particularly on Pentium Pro systems) and out-of-memory errors with Microsoft's Internet Information Server. The patch also deals with a bug that mistakenly moves compressed files stored on NTFS partitions when you attempt to copy them with a Windows 3.1 or Windows 95 version of File Manager.

For more information on the individual bug fixes in the Service Pack, which address problems in both Workstation and Server versions of Windows NT 4.0, check the readme.txt file included with the patch. You can download DEC Alpha, Intel, Mips, and PowerPC versions of this patch from Microsoft's Web site at http://www.microsoft.com/isapi/support/bldqpage.idc?ProductPage=q_servpk&ProductTitle=Windows+NT+Service+Packs, or from Microsoft's FTP server at ftp://ftp.microsoft.com/bussys/winnt/winnt–public/fixes/usa/nt40/ussp1/ (the four processor versions are in the alpha, i386, mips, and ppc directories, respectively).

COLOR QUICKCAM 2.0.2

VIDEOCONFERENCING PIONEERS who use Connectix's Color QuickCam should grab the latest drivers and software from http://www.connectix.com/connect/upda.colo.html. Along with some new color-depth options that better support both the freeware and shareware versions of the CU-See Me Internet videoconferencing program, the 732K patch adds a filter that improves image quality in low-light situations; flip, mirror, and rotate options; and overall performance improvements.

If you find a hardware or software bug, post your report on PC World Online, or send us e-mail at bugs@pcworld.com. ■

IN BRIEF

Descent II 1.1 and Virge 3-D updates

IF YOU'RE A TRUE Descent II addict, you may have encountered one of these hardware-related problems: skipping audio with Adaptec SCSI adapters, CD-ROM drive errors in systems with multiple drives, and incompatibilities with Gravis Ultrasound and Matrox Millennium cards.

The 520K version 1.1 patch (d2ptch11.exe) fixes all these snags and more. But that's not all. If at holiday time you were one of the fortunate ones who received a new 3-D video accelerator board based on the Virge 3-D chip set, you'll definitely want to download the 1.2MB patch that enlivens the game with support for the board's 3-D acceleration. That file is d2virgep.exe. Both patches are available from Interplay's Descent II Web site at http://www.interplay.com/descent/descent2.html.

BUGGED?

LONG, CRYPTIC URLs bug you? Find links to patches mentioned in this column at http://www.pcworld.com/bugs/jan97.

ICON: JEFFREY PELO

THE HUMAN EYE

Also known as:

"THE PIERCING GAZE OF SCRUTINY"

NARROWED AS IT SEARCHES FOR THE DEFECTS AND DESIGN FLAWS SO COMMONLY FOUND IN THE TECHNOLOGICAL ERA, THE EYE HAS ALSO BEEN KNOWN TO POP WIDE OPEN WHEN IT SEES A BETTER WAY.

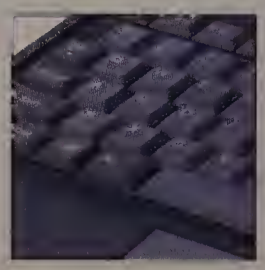
FUJITSU

FUJITSU PC CORPORATION

Built *for* Humans.

The LifeBook™ 500 and 600 Series. Notebooks perfectly designed for a manic, mobile world. A process that involved a close look at the way a notebook should feel, the way it travels, adapts, and, of course, performs.

The LifeBook 500 Series comes standard with CD-ROM, 16-bit sound, color SVGA video and a multi-function bay for endless expandability.



Designed for Microsoft® Windows® 95

LifeBook is a trademark of Fujitsu PC Corporation, and Fujitsu and the Fujitsu logo are trademarks of Fujitsu Ltd. The Intel Inside Logo and Pentium are registered trademarks of Intel Corporation. Microsoft, Windows, and the Windows logo are registered trademarks of Microsoft Corporation. All other trademarks or registered trademarks are property of their respective companies. ©1996 Fujitsu PC Corporation. All rights reserved.

*Preliminary measurement

OUR NOTEBOOKS AS SEEN FROM A HOLY COW PERSPECTIVE.

intel inside pentium® PROCESSOR

The LifeBook 600 Series.

① Is this a 12.1 inch active-matrix color SVGA 800x600 resolution screen? Or am I blind with joy? Yes.

② Look! It's a 1.2", 4.2* lb. travel light notebook. Wait! Attach the enhancement unit and it's a multimedia powerhouse. Somebody stop us.

③ With the option of 2 long-lasting Lithium ion batteries and the comprehensive power panel for on-the-fly tweaking, your vision of battery heaven is now in place.

We saw a big need for flexibility. So our notebooks are expandable by design—second batteries, second hard drives, available 28.8 fax/modems, CD-ROM capabilities, docking options and a full range of the latest Intel Pentium® processors.

But we also paid attention to the outside of our notebooks. An ergonomic form. A smooth feel. A really cool color. Sure, looks aren't everything. But when you combine it with performance, the result is something to behold.

FUJITSU PC CORPORATION. For more info, call 1-888-4-ON-THE-GO, ext. 9512, visit www.fujitsu-pc.com or get a QuikFacts fax at 1-800-936-5209.

Circle 94 on reader service card

The

HUMAN HAND

ALSO KNOWN AS:

The

"CRUSHER"

Able to inflict massive amounts of damage when confronted with a poorly designed notebook. In extreme cases, it is quite capable of putting a hole in the wall.

FUJITSU

FUJITSU PC CORPORATION

Built *for* Humans.

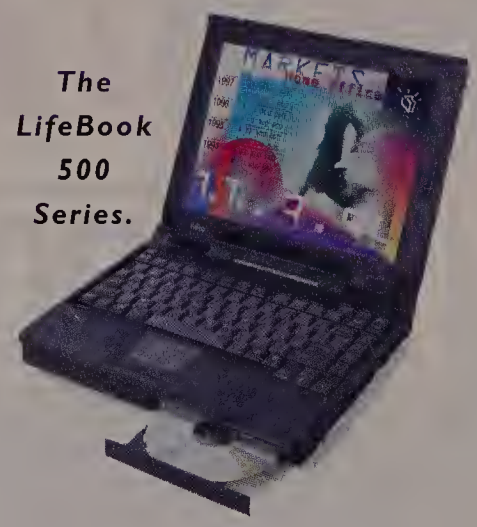
Every LifeBook product must pass the 18,000 open and close test. Or it's not a LifeBook.

intel inside

pentium

PROCESSO

A NOTEBOOK WITH SOME PRETTY COOL TOUCHES.



The LifeBook 500 Series.

Introducing the Lifebook™ 500 Series. A hands-on kind of machine to make your daily experience with a notebook personal and productive, not difficult and really annoying.

A status indicator for access to important operating information. Available internal 28.8 fax/modem with pre-installed "The Internet Starts Here" software suite. Superb color SVGA video that's easy on the eyes. A new ergonomic design because the way a notebook looks and feels is important too.

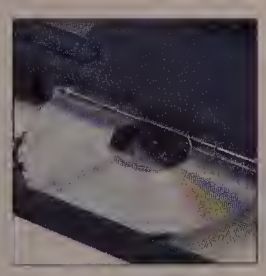
① **With the MULTI-FUNCTION BAY, you always have a choice. Second battery? Second hard drive? Or maybe a snack for later?**

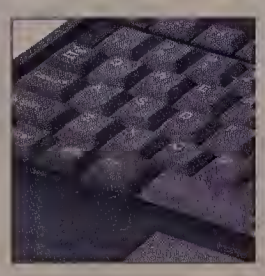
② **A PALM REST for comfort. A newly designed keyboard for convenience—like giving those darn arrow keys some space.**

③ **A really smooth shade of midnight blue to CALM you when you realize you're overworked and underpaid.**

And yes, it's multimedia equipped, powerful and expandable. So you get all the big things you need in a notebook. With all the little details you want.

6x CD-ROM, 16-bit sound and full-motion video support are standard. 120MHz, 133MHz or 150MHz Intel Pentium® processors are powerful options.





FUJITSU PC CORPORATION. For more info, call 1-888-4-ON-THE-GO, ext. 6513, visit www.fujitsu-pc.com or get a QuikFacts fax at 1-800-936-5209.

Circle 103 on reader service card

Designed for Microsoft® Windows®95

LifeBook is a trademark of Fujitsu PC Corporation, and Fujitsu and the Fujitsu logo are trademarks of Fujitsu Ltd. The Intel Inside Logo and Pentium are registered trademarks of Intel Corporation. Microsoft, Windows, and the Windows logo are registered trademarks of Microsoft Corporation. All other trademarks or registered trademarks are property of their respective companies. ©1996 Fujitsu PC Corporation. All rights reserved.

INSIDE 53 Navigator 4.0 and Internet Explorer 4.0 | 54 Utilities Use Web to Update Your PC

TOP OF THE NEWS

TURBOCHARGE YOUR SOFTWARE

IN EARLY 1997 Intel will introduce a new generation of Pentium processors that should significantly boost the performance of multimedia and communications features. Intel claims the new processors, called MMX, can improve software performance by up to 60 percent over standard Pentiums running at the same clock speed. Systems using MMX processors will appear concurrent with the CPU rollout. The drawback: To see really dramatic benefits, software must be customized for the new technology.

PC World tests show Intel's upcoming MMX Pentiums should significantly improve PC-based multimedia and graphics. Will software vendors support the new scheme?

Intel will convert its desktop and notebook Pentium processor lines to MMX technology over the next year, forcing users to make some decisions. Must your next PC have an MMX-capable Pentium CPU? And if so, should you switch from your current software and CD-ROM titles to products that harness MMX?

THE FIRST MMX APPS

TO ANSWER these questions, *PC World* took a look at some of the first MMX software to hit the market. Our findings: An MMX processor, coupled with MMX-aware applications, can make a big difference in key multimedia operations such as image manipulation and 3-D rendering. However, the overall impact varies widely according to how much an application depends on MMX-enhanced operations, and how aggressively it takes advantage of the technology. Ultimately, MMX provides a platform for more realistic game play, better video playback, and more powerful graphic features.

NEW INSTRUCTIONS

FOR THE FIRST time since the introduction of the 80386 in 1985, Intel has added to the base set of instructions that are the lowest common denominator of Windows and DOS applications. MMX-enhanced CPUs add 57 instructions to those in Pentium CPUs, so MMX CPUs need only one step to complete certain operations that take standard CPUs dozens of steps.

The catch is, current software cannot access the new instructions—vendors must add MMX-aware code to accelerate their applications. That task is arduous, so MMX technology is most likely to show up in new software, or in apps like Adobe Photoshop that accept plug-in modules.

Intel will introduce 166-MHz and 200-MHz MMX-enhanced Pentium processors for desktop PCs, as well as 150-MHz and 166-MHz lower-voltage MMX CPUs for notebooks. MMX-equipped PCs should be available immediately after the rollout. Intel plans to release MMX Pentium OverDrive chips in the second half of 1997.

Some MMX applications, such as Ubi Soft's Pod racing game, won't run at all on non-MMX PCs. and will appear only preinstalled on MMX machines. But as MMX systems become ubiquitous, optimized—and incompatible—MMX versions of software could end up on store shelves, inviting confusion.

Even without custom applications, MMX systems will give existing software an immediate performance boost—as much as 20 percent, Intel claims. That's because the MMX chip has 32K of high-speed internal cache, twice as much as the current Pentium. This cuts the time spent accessing slower main memory and secondary cache. Moreover, Intel has improved the pipelined architecture to reduce performance-sapping wait states.

Microsoft has MMX support in the current OSR2 version of Win 95 that's bundled on new PCs. Key components such as the ActiveMovie media player and the Direct3D module have been updated for MMX, as has the DirectX 3.0 technology for Windows 95 games.

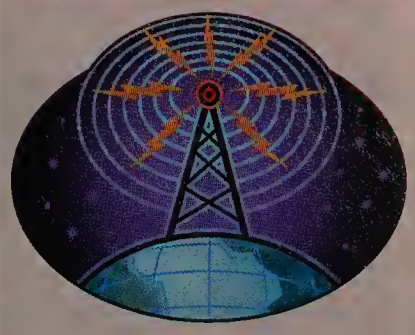
TESTING, 1, 2, 3

WE PREVIEWED early MMX software, installing an MMX beta version of Adobe Photoshop 4.0 and a beta gold version of Fractal Design Ray Dream Studio 4.1 onto a shipping-level PC with an MMX Pentium-166, 512K of secondary cache, and 32MB of EDO DRAM. We timed several graphically in- ▶

EDITED BY
Russell Glitman and Randy Ross

ILLUSTRATIONS, LEFT: DAVID KAHL; RIGHT: JEFFREY PELO

JUST IN



WinZip: Net Necessity

WINZIP 6.2 GOES beyond its traditional role as a shareware compression utility and adds critical Net tools such as UUencode, MIME, and BinHex decoding, so you can read those mysterious e-mail attachments. WinZip 6.2 also includes the Self-Extractor Personal Edition for creating self-extracting files that you can distribute (in .exe format). Version 6.2 is available in Windows 3.1 and 95/NT flavors, and you can download a free 600K evaluation copy from WinZip's site (http://www.winzip.com) or from PC World Online. Registration fee is $29; registered owners of previous versions are eligible for a free upgrade.

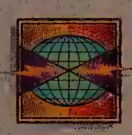
First 200-MHz Notebook Underwhelms

EUROCOM'S 6200 Super-Notebook is the first Pentium-200 notebook we've tested, and it's about 5 percent slower than the fastest P-133 notebook we've tested. For $4610, you get 16MB of RAM, a 1.08GB hard drive, a 12.1-inch active-matrix screen, an 8X CD-ROM drive, and a 28.8-kbps modem.

Unlimited Access

AMERICA ONLINE has new pricing: $19.95 a month for unlimited access, $14.95 a month for ▶

INTERNET



TO GET UP-TO-THE-MINUTE NEWS, including Real Audio daily news summaries, hot game demos, and productivity shareware, check out PC World Online. Just point your browser to http://www.pcworld.com/news.html.

MMX Software Rollout: First Titles Focus on Graphics and Games

COMPANY	Product	Price	Due	Features	Web site	Reader service no.
Adobe	PhotoShop, PhotoDeluxe	$895 list, $49 list	now	Image transformations like blurs and filtering boost photo editing applications.	http://www.adobe.com	806
Asymetrix	3D F/X	$70 street	now	Web and graphics design tool.	http://www.asymetrix.com	807
Books That Work	Visual Home	$60 list	January	Home CAD program with faster solid modeling.	http://www.btw.com	808
Byron Preiss Multimedia	Timetables of Technology	not available	January	Explore technology with rendered 3-D objects.	http://www.byronpreiss.com	809
Dorling Kindersley	Ultimate Human Body	$40 street	January	See the human anatomy with interactive 3-D models.	http://www.dk.com	810
Epic MegaGames	7th Legion	under $50 list	March/April	16-bit color and 3-D graphics in military game.	http://www.epicgames.com	811
	Jazz Jackrabbit II	$39 list	March/April	Side-scrolling arcade game.		
	Unreal	not available	May/June	Quake-like shooter boasts fast 3-D interaction.		
Fenris Wolf	Rebel Moon Rising	not available	January	Sequel to Rebel Moon boasts fast 3-D navigation.	http://www.fenriswolf.com	812
Imagination Pilots	Eraser-Turnabout	$60 street	January	Schwarzenegger gets MMXed in this shoot-'em-up.	—	813
Maris Multimedia	Space Station Simulator	$46 street	January	Help build and manage international space station.	http://www.maris.com	814
Mediamatics PureSpeech	MPEG player	OEM only	January	MMX MPEG player boosts frame rates, quality.	http://www.mediamatics.com	815
Ubi Soft	Pod	OEM only	January	3-D street racer gets fast graphics from MMX.	http://www.ubisoft.com	816

tensive operations, then replaced the MMX chip with a standard P-166 processor and repeated the tests.

In certain operations, the MMX CPU delivered a clear performance advantage, such as when running a Gaussian blur (which creates a hazy effect). When we applied a Gaussian blur to a TIF image file in Photoshop, MMX boosted performance 143 percent, from 51 seconds to just 21 seconds. Increasing image size improved by 33 percent with MMX. When we redrew 3-D scenes, Ray Dream Studio sped up Gouraud and Phong shading about 21 and 27 percent, respectively.

Performance improved a scant 3 percent in the rotate-canvas operation in the beta MMX Photoshop. Mundane operations such as saving and opening files saw no gain.

With MMX's focus on multimedia and graphics, it's not surprising that many of the first applications are games. In fact, Intel expects MMX to appear in home PCs soon, while many business units will use the standard Pentium CPU through the first half of 1997.

Vendors such as Fenris Wolf, Maris Multimedia, and Ubi Soft will release MMX-savvy games. These titles use MMX to provide detailed 3-D graphics and smooth animation not possible with today's Pentiums. Ubi Soft's Pod has fast 15-to-30-frame-per-second animation on a detailed 3-D race track. Mediamatics, meanwhile, will ship a software video decoder that plays high-resolution MPEG-2 video.

Intel says MMX print drivers should help boost color printing speeds, while graphics chip makers say they'll combine MMX with extended video-accelerating hardware to provide MPEG-2 video playback at 30 frames per second.

Does MMX deliver? Developers may take some time to work MMX into their products, but the technology clearly boosts performance for a wide range of software. More important, MMX invites vendors to extend features and capabilities, adding richer 3-D animation and higher video frame rates. With Intel committed to making MMX a standard part of its Pentium and Pentium Pro CPUs, and competitor Cyrix planning a compatible MMX-style chip, the market seems poised to make the transition.

—Michael Desmond

TEST REPORT

MMX Speeds Up Graphics

Most dramatic improvements are seen in image editing.

Open 15.5MB file
Apply Gaussian blur
Increase image size 75 percent
Rotate canvas 330 degrees
Save file as
Switch camera angle, redraw with Gouraud shading
Switch camera angle, redraw with Phong shading

Data based on tests designed and conducted by the PC World Test Center. All rights reserved.

Navigator and Internet Explorer Take Different Approaches to the Web

FIRST LOOK

THE BROWSER IS being redefined in the next versions of Netscape's Navigator and Microsoft's Internet Explorer. While Microsoft is integrating its browser into Windows, Netscape is giving Navigator a not-so-prominent role in a new groupware line. Here's what to expect based on pre-beta copies of Navigator 4.0 and Internet Explorer 4.0.

NAVIGATOR GOES GROUPWARE

NETSCAPE'S $49 Communicator Standard Edition Suite includes Navigator 4.0, as well as Messenger, an e-mail program that runs over LANs and the Internet; Collabra, a tool for creating public and private discussion forums; Composer, a simple HTML editing tool; and a reworked version of Netscape's CoolTalk Internet telephone and conferencing program. A more advanced version of the suite—the $79 Communicator Professional Edition—adds group calendaring and a set of administration tools. Netscape will not offer Navigator 4.0 separately. Beta should be downloadable at http://www.netscape.com in December. Final versions should ship in early 1997.

Navigator 4.0 is expected to address many usability beefs. The early version we saw had bookmarks that let you file URLs into customized folders. (Currently, you must save a URL, then go back and move it to a specified folder.) The interface is elegant and more customizable than before. You can display buttons and icons for the functions you want to use and hide the others. The Taskbar, which goes at the top or the bottom of the screen, lets you jump with a mouse click between Navigator and other parts of Communicator. Finally, a new automated installer should make it easier to configure plug-ins.

NAVIGATOR 4.0's toolbar is more elegant and customizable than in prior versions.

INTERNET EXPLORER 4.0 has a Windows 95 Explorer view of your data and the Web. The right pane changes dynamically when you load an app.

IE GOES DESKTOP

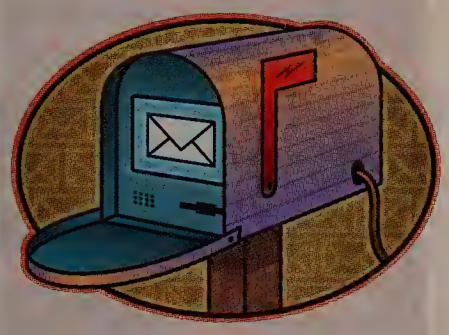
WITH VERSION 4.0, Microsoft has dramatically souped up Internet Explorer and positioned it as a major link in the evolution of its Windows operating system.

Integration between the desktop and the browser allows you to manage files (copy, delete, view, and so forth) and edit documents from the browser, as well as surf the Web. The screen is split into two sections. The left pane displays a Windows 95 Explorer view of your system and the Internet. A View pane on the right shows either a Web page, a Word or Excel document, or a standard folder with file icons. The toolbar changes dynamically to suit what's in the View pane—giving you a Word toolbar when you're editing a document, for instance, and an IE toolbar when you're surfing the Web. A beta version of Internet Explorer 4.0 should be available in December at http://www.microsoft.com; the product is expected to ship in the first quarter of 1997.

Judging by the features and design of these early versions, Microsoft has the advantage over Netscape in the browser wars. Besides, it's free.

—*Yael Li-Ron and Randy Ross* ▶

two years paid in advance, and $17.95 a month for one year paid in advance. AOL joins Microsoft Network, AT&T, and SpryNet, which already offer unlimited Internet access for $19.95 per month. **Prodigy also jumped on the flat-rate bandwagon** launching its Prodigy Internet 1.0. Web service. For $19.95 a month, users get unlimited access to the Internet and to members-only Web sites that include chat rooms and bulletin boards.



Do Ergo Keyboards Help?

ERGONOMIC KEYBOARDS don't necessarily increase user performance or efficiency or decrease the risk of repetitive strain injuries, according to *CTD-News*, a monthly ergonomics newsletter. Worse, **typists with small hands may actually increase their risk of RSI** by stretching their fingers across the keyboard, according to the report. However, ergonomists contend the keyboards can help.

Pentium on a Belt

XYBERNAUT'S NEWEST wearable PC, the Mobile Assistant II, packs a **Pentium-75-class** chip, 16MB of RAM, a 1.2GB hard drive, and two PC Card slots into a 3.5-pound device **that fits on your belt.** A 12-ounce head-mounted 640 by 480 monochrome display is suspended in front of one eye. The head mount includes a noise-canceling mike and earphone. The Mobile Assistant uses voice recognition for hands-free access to Win 95 ▶

ILLUSTRATION: JEFFERY PELO

Rx for Your PC: Utilities Use the Web to Prescribe Software Updates and Fixes

PCS ARE STILL notoriously difficult to use and support. To address this issue vendors are introducing "intelligent utilities." These products use the Web to update your PC with the latest software and drivers and attempt to prevent or fix common problems that used to require a call to tech support. We examined several promising stand-alone products. Next year, expect to see these and similar utilities bundled into new PCs.

CyberMedia's $40 First Aid 97 improves in many ways on its predecessor, First Aid 95. Besides having a better interface, First Aid 97 is more effective. A prerelease version found and fixed a raft of minor Windows 95 problems on my PC, such as nonworking Windows 95 Shortcuts. Cybermedia claims the product can fix thousands more problems than the previous version. Of course, First Aid 97 cannot fix true hardware problems such as a bad hard disk. But it can connect to the Web to update older versions of some critical software on your system, such as device drivers, and outdated Windows 95 system (but not application) files.

Oil Change, CyberMedia's complementary $30 product, is designed to keep your PC software—including drivers and applications—up-to-date. Oil Change scans your system and develops an inventory of your software and drivers. Each time you run it, the product connects to Cybermedia's database via the Web and checks for new versions and bug fixes. Then it automatically downloads and installs the updates. Oil Change handles updates for itself and hundreds of popular products, including major software applications and device drivers.

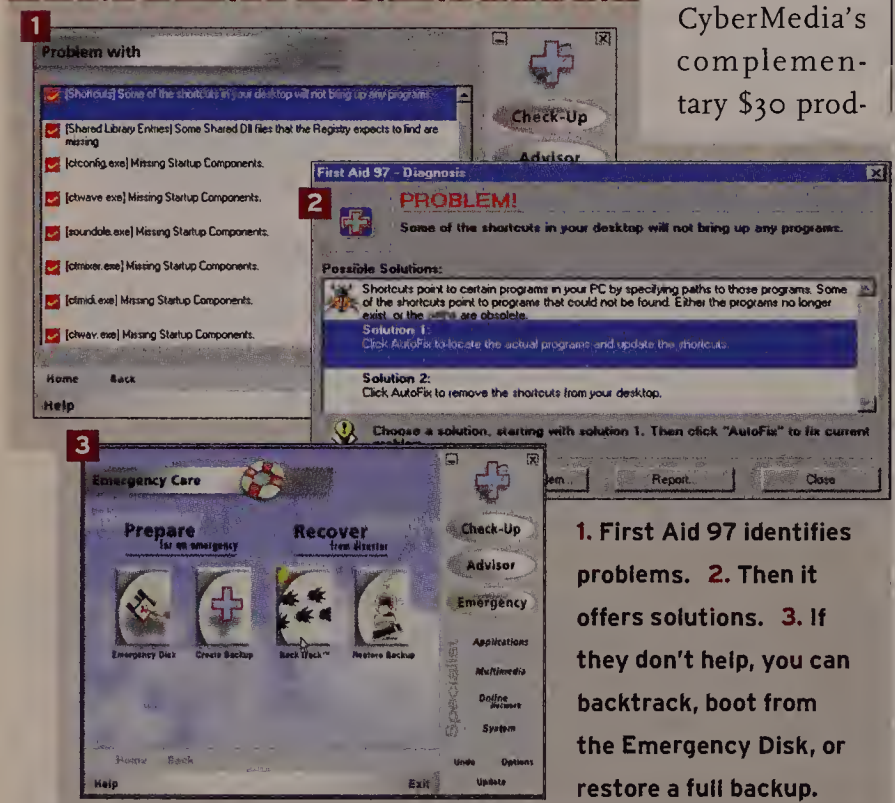
NetSync's WebPatch competes with Oil Change and takes a different tack. NetSync charges vendors who want to provide updates, so WebPatch is free to users via the Web. (Corporations are charged a one-time fee of less than $20 per user.) It also "patches" existing software, instead of replacing it, which should saves both Web connect and update time. The prerelease version of WebPatch that I tested showed promise, but the jury is still out. The product could not detect my configuration, though the company expects to add that capability soon. WebPatch is not as comprehensive as Oil Change. For example, it lacked drivers for my Diamond graphics card. NetSync says the final version will include more patches.

Symantec's PC Handyman includes two notable components. Like First Aid 97, Norton CrashGuard With Anti-Freeze works continuously in the background and is designed to fix common Windows 95 system and driver problems as they occur. It did not, however, find many of the (admittedly minor) problems that First Aid 97 caught immediately. PC Handyman also includes a CD-ROM with over 140 instructional video clips that offer help on resolving tough problems and installing new hardware. Although you can update PC Handyman over the Web, there's a major limitation: The utility does not check for outdated software and can't update old drivers and other system software that frequently cause problems.

Although diagnostic and update utilities are improving, there will always be problems that require a call to tech support. Still, after examining these prerelease utilities, we feel this new family of programs has merit. In particular, CyberMedia's First Aid 97 and Oil Change appear to offer the most potent combination for both fixing problems and keeping your software current.

—Stan Miastkowski

FIRST AID IN ACTION



1. First Aid 97 identifies problems. 2. Then it offers solutions. 3. If they don't help, you can backtrack, boot from the Emergency Disk, or restore a full backup.

First Aid 97

PRO: Much improved over past version.
CON: Might slow down older PCs.
VALUE: Can pay for itself.
Street price: $40

Oil Change

PRO: Keeps software current.
CON: Updates can be slow.
VALUE: Quickly pays for itself.
Street price: $30 per year
CyberMedia
800/721-7824
http://www.cybermedia.com
READER SERVICE NO. 802

PC Handyman

PRO: Comprehensive features and instructional videos.
CON: No integrated way to update system software.
VALUE: Geared for novice users.
Street price: $49
Symantec
800/441-7234
http://www.symantec.com
READER SERVICE NO. 803

WebPatch

PRO: Patented patching technology makes updates fly.
CON: Limited updates.
VALUE: Can't beat the price.
Price: Free from company Web site
NetSync
888/932-7282, 619/438-0176
http://www.webpatch.com
READER SERVICE NO. 804

MagnaRAM 97 Saves a Bit of Time Loading Win 95 Apps

QUARTERDECK'S $30 MagnaRAM 97 is the first Win 95 RAM-enhancement utility we've tested that truly speeds performance, though the benefit is limited to improving the time it takes to open apps. Previously, we found this class of software tended to hinder overall performance. Still, most Win 95 users should consider adding RAM instead.

Unlike products we tested before, MagnaRAM 97 is designed to make the most of existing RAM on Win 95 PCs. The vendor says its new compression technology crams more data in RAM, where it can be accessed faster than if stored on the hard drive in virtual memory. Quarterdeck claims MagnaRAM 97 speeds the loading of 32-bit apps and runs them faster on Win 95 PCs with 16MB or more RAM.

We tested the product on a Pentium-90 PC running Windows 95 and got mixed results. With MagnaRAM 97, a 16MB system loaded common 32-bit applications up to 42 percent faster than the same system without MagnaRAM. In its finest performance, the 16MB MagnaRAM PC loaded Excel 7.0 in about 4.7 seconds, while the 16MB PC without it took about 6.7 seconds. Word 7.0 and Picture Publisher 6.0 also loaded faster with MagnaRAM, but improvements were less dramatic. On a PC with 32MB of RAM, MagnaRAM loaded our test apps up to 21 percent faster than a PC without MagnaRAM did. However, we saw that improvement only after opening and closing apps repeatedly and performing other tasks to simulate heavy use.

In tests involving basic tasks with common apps, such as opening files and manipulating large, memory-hogging graphics, MagnaRAM's impact was insignificant. Worse, adding the program to a 16MB system slowed down some graphics-intensive tasks.

The upshot: In certain situations, MagnaRAM can speed performance. If your system has 32MB of RAM and you open apps often, MagnaRAM can save you time. If you've got 16MB, open apps repeatedly, *and* use large, highly compressible files, MagnaRAM also can help. Most users, particularly those with 8MB or 16MB PCs, are better off adding more RAM.

—*Shane Rau* ▶

Quarterdeck MagnaRAM 97

PRO: Applications open faster under 16MB and 32MB.

CON: Apps don't run any faster.

VALUE: Best for power users with 32MB machines.

Street price: $30 with $10 rebate

Quarterdeck

800/354-3222, 310/309-3700

http://www.quarterdeck.com

READER SERVICE NO. 805

TEST REPORT

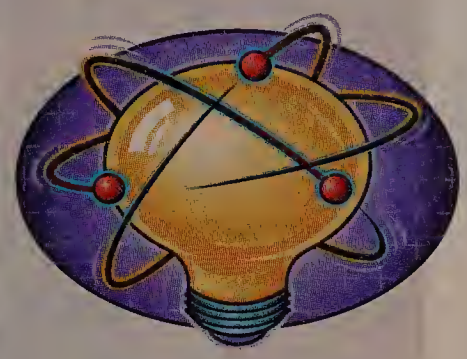
MagnaRAM 97 Opens Apps Faster

Benefits both 16MB and 32MB systems.

HOW WE TEST We ran all tests on a Micron Millennia P90 with a Pentium-90 CPU. For each application load test, we created and selected a Shortcut icon for the app, pressed <Enter>, and recorded the time it took to load completely. The Excel load test was conducted with Word already loaded. 16MB times represent average of three trials with reboot between each trial; 32MB times average three consecutive trials. Data based on tests designed and conducted by the PC World Test Center. All rights reserved.

ILLUSTRATION: JEFFREY PELO

applications. The $7995 device has a full array of ports. Xybernaut is at 703/631-6925.



Two Hot Technologies

IBM HAS DEMONSTRATED a technology that puts more on a tiny screen than any method we've seen. Using the technology, a 1.4-inch display projects an image onto a mirror, which magnifies the image so it looks as if it's on an 11-inch VGA monochrome screen.

The personal area network uses nearly imperceptible electric body currents to move data. You could exchange electronic business cards via a handshake or transfer a phone number from your pager to a cell phone. IBM demonstrated a transmitter and receiver, each the size of a deck of cards, that may be combined into one unit. No word on cost or when a product may ship.

TidBytes

ONE MODEM, Two High-Speed Upgrades: Cardinal's new 33.6-kbps analog modems are upgradable to 56-kbps and ISDN. They come in three versions—external ($170), PC Card ($200), and internal ($150). The 56K upgrade should require only software; the ISDN upgrade needs the $80 Upgrade Option kit. All are expected in early 1997. **20MB on a Business Card:** Iomega is creating a new disk format, n-hand, that's half the size of a business card and costs about $10 for 20MB. Look for products with n-hand disks in the second half of 1997.

Road Troubles: Fast-Moving Technology Causes Notebook Breakdowns

WON'T HOLD A CHARGE: Jesse Cornell's new Toshiba notebook came with battery problems.

CONSUMER ALERT

ADVANCES IN technology and design are making notebook PCs more popular than ever. But experts say vendors increasingly sacrifice quality in order to meet stiff price competition; shorter product cycles; and consumer demand for smaller, lighter designs. As a result, more and more buyers are complaining about flaws ranging from marred active-matrix displays to bum batteries.

Jesse Cornell of Bossier City, Louisiana, is a case in point. He bought a Toshiba Satellite Pro so he could work on the road and exchange e-mail, but found that the system's battery failed to keep a charge when the notebook was shut down and left unplugged overnight. Fortunately, his machine was still under warranty.

SPREAD THE BLAME

THE INCREASE IN notebook problems is easy to explain, says Andrew Seybold, editor of the newsletter *Outlook on Communications and Computing:* "Blame it on Intel." Presented with three new notebook Pentium processors in the first nine months of 1996, notebook vendors have had less time for troubleshooting. Product cycles that formerly lasted ten months now run six months or less, says Seybold.

> The increase in problems is easy to explain: "Blame it on Intel," says Andrew Seybold.

It's not just second- and third-tier vendors that are having these problems, says Ken Dulaney, vice president of mobile computing for The Gartner Group, a research firm. "We first noticed [problems] six or seven months ago. It began with Compaq having a lot of trouble with notebooks, and then we started to hear problems from Dell, NEC, and Toshiba."

To complicate matters, notebook vendors rely on offshore manufacturers, particularly in Taiwan and Malaysia. Asian manufacture is hardly new—the Taiwanese company Acer builds Apple's PowerBooks and Texas Instruments' Extensa 400 systems. But doing business with companies overseas can be tricky. Texas Instruments recalled many of its Extensa 500 notebooks after hard drives in the units made in Taiwan failed. The explanation: Texas Instruments' Taiwanese supplier, First International, used tin connectors instead of gold. Analysts say that problems often arise because companies fail to actively manage their offshore manufacturing operations, leaving oversight to their partners.

AVOIDING TROUBLE

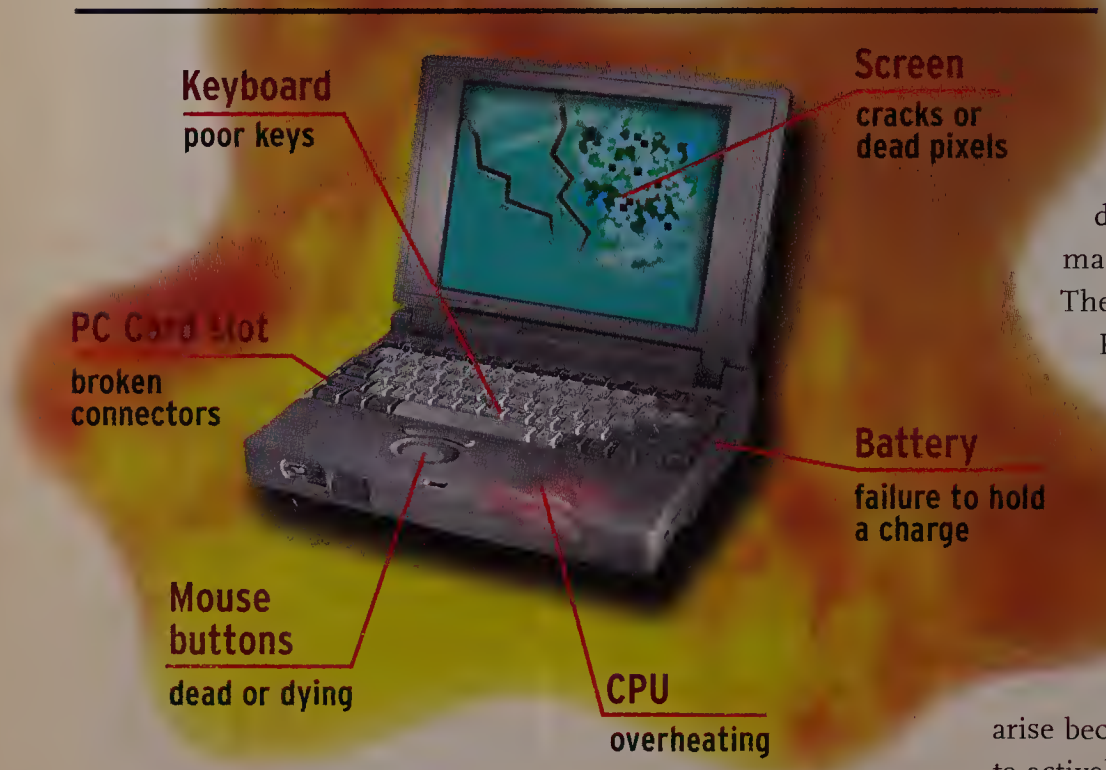
NOTEBOOK PROBLEMS may be on the rise, but you can avoid them. The best strategy: Stay away from the cutting edge. Depending on the application, a 133-MHz notebook with 32MB of RAM can match or even exceed the performance of a 150-MHz model with 16MB of RAM. The vast majority of applications run very nicely without the expensive 12.3-inch and 13.1-inch displays, which are more prone to cracking and pixel failure.

New thin-and-wide notebooks are more susceptible to damage from torque and impact than heftier models. Inspect your system thoroughly when you receive it. Examine the display for "dead" pixels that don't match others nearby; check the display hinge, the port doors, and the keys on the keyboard to confirm they all feel solid. While there's no guarantee your notebook will run problem-free, these precautions should cut your risks.

—*Michael Desmond* ▶

Problems on the Rise for Notebooks

Components that users and analysts report are most prone to failure.



PHOTOGRAPH: PHILIP GOULD

COMPRO™
The Way to Go

Smile!

You're on the internet.

Gotcha! Now you can look your best when surfing the Net with the Compro™ Color Digital "Internet Camera"™

No longer will you wonder what the person looks like on the other end of the chat line. With 16.8 million color images and adjustable focus lens, video chat, video conferencing, video e-mail and more are now possible. Affordably priced under $200.00, the Compro™ Color Digital "Internet Camera"™ comes complete with software and hardware and is ready to go when you are.

To see one for yourself, contact a retail location closest to you or call toll free 1-888-2COMPRO for more information or browse our web page at http://www.acscompro.com. With the Compro™ Color Digital "Internet Camera"™ there's a lot more to see on the Internet.

ACS Innovations, Inc. 3171 Jay St. Santa Clara CA 95054-3308 1-888-2COMPRO http://www.acscompro.com

Available at: COMPUSA THE COMPUTER SUPERSTORE **Call 1-800-COMPUSA for your closest location**

Circle 10 on reader service card

Internet for the Jet Set? New Cell Phones Dial Up for E-Mail, Fax, and Net Access

ELECTRONIC communication devices have become something business travelers can't live with and can't live without. Many people lug notebooks around just to check e-mail, but those units require a phone jack and often need a power source too. PDAs weigh less and have longer battery life, but most of them require a phone jack. Wireless modems exist but are cumbersome. Typically, they must be connected to a cellular phone. Now several vendors have built e-mail, fax, and Internet access into a small wireless device that many people already carry: a cellular phone.

We examined phones from AT&T, Mitsubishi, and Nokia. One thing is certain: These products won't replace your notebook for the most demanding e-mail, Net, and fax tasks, nor were they meant to. Entering data on the tiny keyboards and reading messages on the mini screens can be as tiresome as using palmtop PCs. But these devices let you tap a wealth of information—much of it on the Web—and send and receive e-mail from just about anywhere a wireless service can reach you.

FIRST PHONES

AT&T'S POCKETNET and Mitsubishi's MobileAccess devices should be available by the time you read this. These dual-personality units—virtually identical in features—let you switch between phone and Internet features with the push of a button. In Internet mode, they communicate over a cellular digital data service called Cellular Digital Packet Data. Almost half the people in the United States have access to CDPD service, with 54 cities offering full coverage.

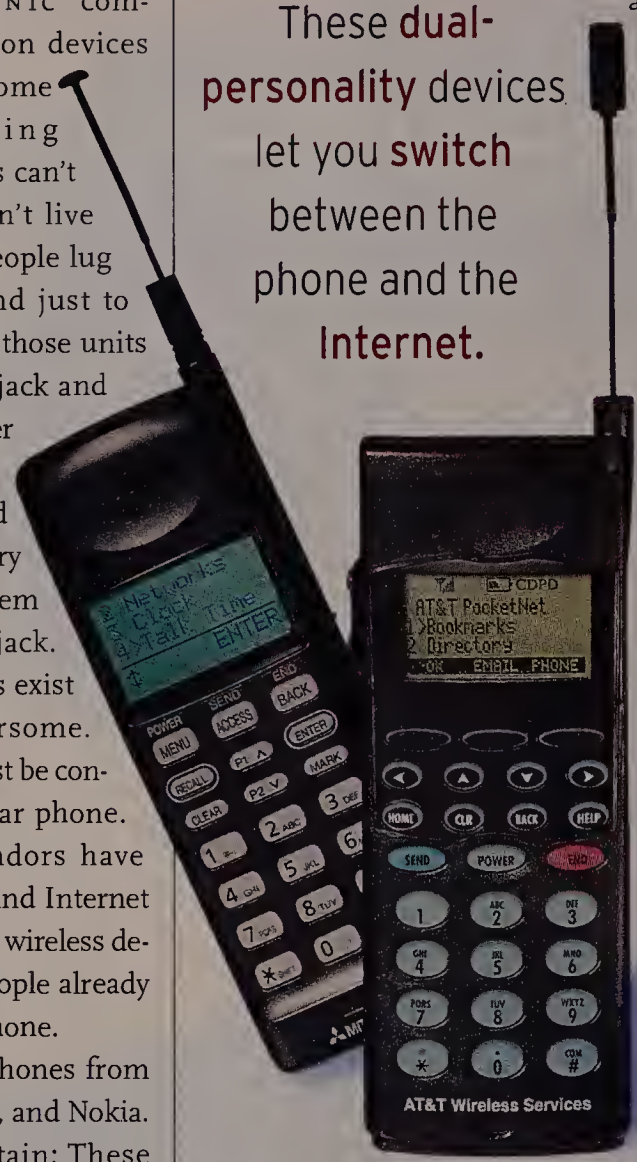
The phones are a tad larger and more expensive than today's cellular phones. They weigh somewhere between 10 and 13 ounces, measure 6 inches long, and sell for $500 to $600—considerably more than their voice-only counterparts. In addition, AT&T Wireless charges a $30 to $40 monthly premium for the data service.

Composing e-mail on these phones is tedious because of their miniature keypads. As on standard phones, each key has three or four letters; for example, the 2 key has the letters *A*, *B*, and *C*. To enter a *C*, you have to press the 2 key three times. Reading messages is less challenging. Each of the phones has a small four-line screen, which is adequate for viewing short messages. Reading longer e-mail messages is cumbersome but possible. Long incoming messages are automatically broken up into 1400-character batches—the maximum size for a message. You can forward long messages to a local fax machine. You can't read e-mail file attachments. Messages are stored on the provider's network.

We were impressed with the phones' ability to provide quick access to Web sites designed for the small display. These sites contain no graphics and consist only of menus of selectable text items. The Web pages are created with a variant of the Web's HTML code called HDML (Handheld Device Markup Language). The menu system for both phones is easy to use. We were able to check the local weather, find movie locations, and have articles in national newspapers e-mailed to us—in each case by using only a few keystrokes.

Currently HDML pages are limited to those that are developed by certain cellular service providers, such as AT&T. However, those providers will allow businesses to create their own pages.

These dual-personality devices let you switch between the phone and the Internet.



WEB CALLING: Mitsubishi's MobileAccess, left, and AT&T's PocketNet link you to the Net.

NOKIA'S PALMTOP CELLULAR PHONE

AVAILABLE IN Europe and scheduled for launch in the United States later this year, Nokia's 9000 Communicator incorporates the greatest number of PC features and offers a glimpse of the direction this technology is taking. The unit looks like a conventional cellular phone, but it opens like a clamshell to reveal a palmtop computer with a 65-key QWERTY keyboard and a 640 by 200 LCD screen. It's powered by an Intel 386 processor, includes 8MB of memory, and uses the GEOS operating system. It comes with several miniapplications, including a contact list, a calendar, and a notepad.

Because of its larger screen and keyboard, the Communicator is superior to the AT&T and Mitsubishi phones for managing e-mail. The e-mail applet is straightforward, and the keyboard is as easy to use as most you'll find on palmtops. Like the AT&T PocketNet and Mitsubishi MobileAccess phones, Nokia's 9000 Communicator allows you to forward messages to a fax machine, but this function is more awkward than with its competitors: You have to copy and paste the message in- ▶

PHOTOGRAPHS: JOHN GREENLEIGH

It's your business.
Who would you trust to back you up?

Introducing the new HP Colorado T3000 Tape Drive.

- Up to 3.2 GB* capacity at an affordable price
- Industry-leading reliability for complete confidence
- One-Button Backup makes it quick and easy

HEWLETT® PACKARD

If you were to take stock of all the information stored on your PC, you'd soon realize how vital it is to your business. What if one day all that information vanished? Accidents happen. Theft, fire, floods, computer failure or human error can result in a devastating loss of data. The cost of rebuilding that data can be massive and often impossible. Few businesses survive it.

Regular backups using a reliable HP Colorado tape backup system are your best insurance that, should disaster strike, you're back up and running in minutes.

With award-winning Colorado Backup for Windows 95 software included in every HP Colorado drive, data protection simply doesn't get any easier. And nothing is more reliable. What could be more important than that?

Your business depends on your data. You can depend on HP Colorado to look after your data. Visit your dealer or call **1-800-826-4111 ext. 2011** for more information. HP Colorado Tape Storage. A store you can trust.

Designed for Microsoft Windows 95

* Maximum capacity using 2:1 data compression

© 1996 Hewlett-Packard Company. All rights reserved. Windows and the Windows logo are registered trademarks of Microsoft Corp.

NOKIA'S COMMUNICATOR is a cell phone and PDA with e-mail, fax, and Net access in one package.

to a fax form for forwarding. Unlike the other phones, the Communicator has a fax client, so you can send, receive, and view faxes.

The Communicator is the only device we examined to provide a real graphical browser that lets you access any Web site directly. At this point, however, it's crude compared to PC-based browsers—for example, it doesn't support Java or plug-ins. And downloading Web pages takes forever because the link is only 9600 bits per second. Moreover, most graphics look dull on its screen, which shows only eight shades of gray. The browser includes a usable text-only mode, but it too is slow for downloading Web pages.

There are other caveats. The Communicator weighs nearly a pound and stands 7 inches high—bulkier than the AT&T and Mitsubishi phones and stretching the bounds of what can be considered a pocket device. Also, it requires a cellular service called Global System for Mobile Communications that is not generally available in the United States and isn't expected to be as widespread as CDPD. Though Nokia has not yet set local pricing, in Great Britain the Communicator sells for the equivalent of a whopping $1800.

CALLING CUSTOMERS

DESPITE THESE products' appeal, we can't currently recommend them for the casual user. If you need wireless access to corporate data and e-mail and are willing to pay for it, however, the devices merit a look. Just make sure that cell service for the phone you're considering is available in your area and where you travel regularly. By year-end, expect lower prices and increasingly widespread service.

—Bryan Hastings

AT&T PocketNet, Mitsubishi MobileAccess

PRO: Best wireless data coverage.
CON: No fax client, tiny keypads.
VALUE: Good for basic e-mail.
Availability: First quarter 1997
Street price: $500 to $600
AT&T Wireless Services, 888/299-8558, http://www.airdata.com
READER SERVICE NO. 798
Mitsubishi Wireless Communications, 408/730-5900, http://www.mitsubishi.com/groups/pmc.htm
READER SERVICE NO. 799

Nokia 9000 Communicator

PRO: Best e-mail interface, fax.
CON: Costly, limited service area.
VALUE: Cell phone and PDA in one.
Availability: Summer 1997
Pricing: Unavailable at press time
Nokia Mobile Phones, 800/341-4667, http://www.nokia-americas.com
READER SERVICE NO. 800

Paging the World Wide Web

MOTOROLA'S PAGEWRITER offers Web access and e-mail.

CELLULAR PHONES are not the only portable communication gadgets jumping onto the Internet and donning palmtop personas. This June Motorola plans to offer the first keyboard-equipped pager that accesses e-mail and Web-based services. Based on the Motorola 68000 series CPU, the PageWriter has a 46-key QWERTY keyboard, a built-in pointing device, and a backlit LCD screen. It includes 1.25MB of RAM.

The PageWriter lets you send and receive e-mail and paging messages but not faxes. In addition, the PageWriter lets you access Web information made available by your paging service provider. The unit we tested had access to national weather, stock quotes, and flight information. The PageWriter does not include a browser for general Web surfing, nor does it support e-mail attachments.

This device is not designed for composing long messages. The keyboard is absurdly small, making data entry even more of a challenge than with conventional palmtops. But this pager's message-handling prowess rivals that of the cell phones discussed above. The PageWriter has a directory where you can store e-mail, pager, and fax addresses. You can also create mail groups that mix all three. And the device lets you forward messages to e-mail or pager addresses. The PageWriter will cost between $150 and $250. ▶

Motorola PageWriter

PRO: Very small, long battery life.
CON: Tiny keyboard, limited Internet access.
VALUE: Good for two-way paging and reading e-mail.
Availability: June 1997
Street price: $150 to $250
Motorola, 800/548-9954, http://www.mot.com/PageWriter
READER SERVICE NO. 801

Are You a Prudent Person?

Then invest in DTK networking solutions with Pentium® Pro processors!

PENTIUM® PRO PROCESSOR

Here's what *Computer Reseller News*, the industry's bible, said about DTK's network workstation:

"The APRI's all-SCSI peripherals, AMI BIOS, Intel 440FX chipset and proprietary motherboard combined to garner the highest overall score and to outpace the field in two of the five applications tests. It finished...a close second in the remaining three individual tests. "The DTK APRI-31M/P200 is a price/performance leader, and an excellent value..." — *CRN*, 9/2/96

"H-P, DTK lead the Pentium® Pro pack" — *CRN*, 9/2/96

When you *invest* in DTK networking workstations *dependability* and *performance* are your DTK *dividends!* Just look at the powerful controllers we've packed into your DTKAPRI-31 desktop networking station.

It's powered by a 200MHz Intel® Pentium® Pro processor. The 3COM network card ties right in to your company intranet. The fast, all-SCSI peripherals are controlled by an Adaptec® 2940 SCSI controller, the industry standard.

A 64-bit PCI graphics card with 4MB RAM makes for super-fast screen redraws, saving you time with every mouse click!

And your APRI-31 is neatly packaged in an easy-entry mid-tower case that needs no tools to open. This means real time-savings during upgrading or maintenance.

And DTK's APRI-31 desktop network stations ship with Windows NT™ Workstation ver. 4.0 already installed and tested on your hard drive!

APRI-31

- Intel 200MHz or 180MHz Pentium® Pro processor w/256KB L2 cache
- Up to 384MB EDO RAM on board
- 3COM Network Card
- AMI Flash BIOS
- 8X CD-ROM drive
- PCI 64-bit Graphics Accelerator with 2MB or 4MB RAM
- 2.5 Gigabyte EIDE Hard Drive
- 3.5-inch Floppy Disk Drive
- MS Mouse and MS Keyboard
- MS Windows NT Workstation v. 4.0
- 2-yr. Ltd. Warranty (On-Site opt'l.)

Now, DTK's new APRI-32 has *DUAL* Pentium® Pro processors!

The ultimate system for workstations and servers, it's DTK's new APRI-32, featuring dual Intel® Pentium® Pro 200MHz processors and an integrated Wide SCSI controller! The power of the new Windows® NT Workstation ver. 4.0 (shipped with the APRI-32) and DTK's new dual processor system make an ideal networking combination.

Now shipping, your new APRI-32 can be custom-configured with up to 384MB of EDO DRAM and a 3D or 2D PCI graphics card.

And, with the Seagate Wide SCSI hard drive with 2, 4 or 9 gigabyte capacity (2GB is standard), the APRI-32 is an unbeatable workstation/server system.

All DTK systems are FCC certified and UL Listed. Technical support from our network-savvy specialists is free.

DTK has combined the most advanced technology with sensible pricing. It doesn't take a Wall Street analyst to recognize the APRI-32 as a wise choice.

APRI-32

- **DUAL** Intel 200MHz Pentium® Pro processors w/256KB L2 cache
- Up to 384MB EDO RAM on board
- 3COM Network Card
- AMI Flash BIOS
- 6X SCSI CD-ROM drive
- PCI 64-bit Graphics Accelerator with 2MB or 4MB RAM
- 2,4, or 9GB SCSI-2 or Wide SCSI HD
- 3.5-inch Floppy Disk Drive
- MS Mouse and MS Keyboard
- MS Windows NT Workstation v. 4.0
- 2-Yr. Ltd. Warranty (On-Site opt'l.)

DTK Computer

http://www.dtkcomputer.com

Atlanta	Chicago	Houston	Los Angeles	Miami	New York
(770) 246-0100	(847) 593-3080	(713) 568-6688	(818) 810-0098	(305) 597-8888	(908) 562-8800

The Intel Inside Logo and Pentium are registered trademarks and the Pentium Processor Logo and the Pentium Processor Pro Logo are trademarks of Intel Corporation. Windows is a registered trademark and NT is a trademark of Microsoft Corp. The DTK Monitor Logo is a registered trademark of DTK Computer Inc. All other trademarks are the properties of their respective owners. ©1996 DTK Computer Inc. All rights reserved.

Circle 84 on reader service card

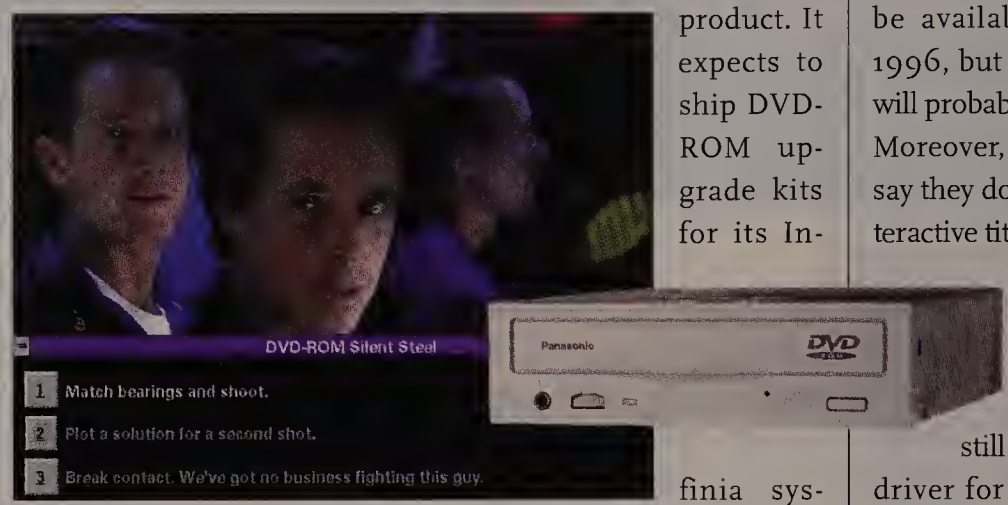
DVD Drives: Definitely Very Delayed

UPDATE

DIGITAL VIDEO DISC technology has won a spot in the vaporware hall of fame: After a year of hype, the technology still hasn't arrived. The latest word is that the DVD players won't hit stores until January 1997. These $500-to-$700 devices attach to a TV or PC and play 4.7GB discs that support high-quality audio and video. The first DVD-ROM drives, to be sold in PC upgrade kits and new home computers, will surface in February and March. But even with this good news, problems will remain: In March you'll find few movies or interactive titles for these devices.

At press time entertainment and computer executives had agreed on a DVD encryption scheme. Toshiba and Matsushita Consumer Electronics Company (the parent firm of Panasonic) will be first to market with DVD players. But neither company will provide a ship date. "We're waiting... to hear from the software community," says Rusty Osterstock, MCEC's national marketing manager. Sony, Pioneer, and Samsung plan to offer DVD players later in 1997.

Toshiba will likely be the first company to unveil a PC product. It expects to ship DVD-ROM upgrade kits for its Infinia systems in February or March and will offer Infinias with DVD-ROM drives at the same time. Panasonic will sell consumer upgrade kits and drives for PCs starting in early 1997.



SILENT STEEL, a video-intensive game, is among the first multimedia titles expected for the DVD format.

But what about software? Today you can buy one DVD-ROM, Digital Directory Assistance's $99 PhoneDisc PowerFinder USA One; the single disc packs six CD-ROMs' worth of listings. In early 1996 Warner Home Video, Hollywood's head DVD cheerleader, said 250 movies would be available by Christmas 1996, but the actual number will probably be fewer than 50. Moreover, CD-ROM vendors say they don't expect many interactive titles before fall 1997.

One final issue could delay hardware and software: Microsoft is still developing a device driver for Windows 95, and software that lets the DVD-ROM drive recognize the DVD-ROM file format. The latter software isn't done, says Bill Veghte, Microsoft's Windows Platform group manager. "We have no comment on time frame at this point," he says. Time will tell.

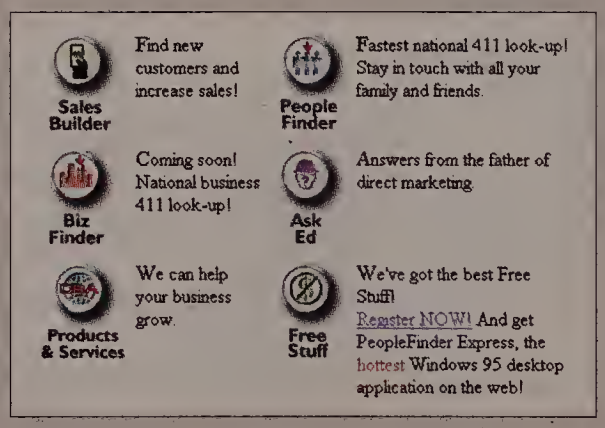
—Laurianne McLaughlin

WEB BROWSER

Sales Builder Offers Web-Based Direct Marketing

ANY MARKETING manager knows how long it takes to build and maintain an accurate database of sales leads and direct marketing information. Now you can automate the process using Database America Companies' online lead-generating product, **Sales Builder.**

By logging on to the World Wide Web site of Sales Builder from Database America (http://www.databaseamerica.com), small and medium-size businesses can access detailed information from Database America's file of more than 11 million U.S. businesses and use this information to create targeted prospect lists. Users can select marketing criteria such as demographic and geographic attributes and hone the list to specify details like sales volume and number of employees. Be warned, these searches can take time—on our T1 line we often waited 5 to 10 minutes to get results.



DATABASE BUILDER: You can create a direct marketing campaign with Sales Builder.

Sales Builder generates a list of sales leads, which users can download to their computers for a nickel per lead. The list includes business names, addresses, and phone numbers that you can export to any desktop word processing or spreadsheet application. You can also purchase the data for shipment in hard copy labels.

Database America is rolling out two versions of Sales Builder. A small office/home office version will enable users to search by business type, geographic delimiter, unit sales, and staffing levels. An industrial version targets the more traditional business marketing manager, with in-depth features such as credit reports and detailed information on sales volume.

Users of Sales Builder need register for the service only when they are ready to purchase a lead. Database America's file of businesses is updated quarterly.

—Samantha Parent ■

THE VISIONMASTER PRO 21

LOOKING GOOD AT JUST $1,620 ESP

THE VISIONMASTER PRO 21

GUESS WHAT THE BRITISH, FRENCH, AND JAPANESE KNOW ABOUT GRAPHICS AND IMAGING THAT YOU DON'T ?

THE U.K'S BEST-SELLER.
They know performance when they see - and use - it.

PICTURE PERFECT IN FRANCE.
The choice of one of France's largest multimedia production companies (that's nothing to sniff at).

ONE OF JAPAN'S TOP THREE.
iiyama is consistently among the top three in monitor sales for all of Japan.

A WORLDWIDE FAVORITE.
Engineers at one of Japan's largest computer products companies look at the big picture on iiyama monitors.

They Look Much Better On An iiyama Pro 21"

A FULL LINE AT GREAT PRICES

Model/ Viewable Area	Dot Pitch Horiz. Scan	Max. Horiz. Scan Rate	Refresh Rate	ESP
21" MT-9021E (19.5" vis)	.30mm Aperture Grille	94 kHz	76 Hz (1600 x 1200)	$1,620
21" MF-8221E (19.5" vis)	.27mm Flat Square	94 kHz	76 Hz (1600 x 1200)	$1,585
17" MT-9017E (16" vis)	.25mm Aperture Grille	92 kHz	72 Hz (1600 x 1200)	$799
17" MF-8617E (15.75" vis)	.26mm Flat Square	86 kHz	69 Hz (1600 x 1200)	$710
15" MF-8515F (13.9" vis)	.28mm Flat Square	66 kHz	80 Hz (1024 x 768)	$374

No matter where you go in the world, there's a universal word for dazzling clarity, blazing color, and precision performance: *iiyama* – makers of international best-selling monitors for graphics, imaging and desktop publishing.

Whether you choose our spectacular VisionMaster Pro 21 with its Diamondtron® CRT technology, or any of our other popular 15" and 17" models, count on unequaled clarity, high refresh rates, on-screen precision controls, and countless other high-end features normally found on much more expensive monitors.

Discover the superior features, service and 3-year warranty that helped put *iiyama* monitors on the map – in North America and around the world. Stop by our Web site or call today for more information and the name of the authorized dealer nearest you.

Windows POWERED PICK · ReselleNews Editor's Choice · PC MAGAZINE EDITORS' CHOICE · FINALIST · CADENCE TOP PERFORMER · PC WORLD BEST BUY July, 1996 · colorific

iiyama®

West: 1-800-594-7480 • East: 1-800-313-4335

www.iiyama.com

VisionMaster is a trademark of iiyama Corporation. Diamondtron is a registered trademark of Mitsubishi Corporation. Copyright iiyama, 1996.

Circle 108 on reader service card

It's Not
Just Another
24-Hour Gig!
GATEWAY2000
"ou've got a friend in the business."®

We've Gotten Bigger This Year!

Like Santa, we're burstin' at the seams ... with pride. The Destination™ Big Screen PC is the star on the GATEWAY™ product tree! And now it's more affordable than ever, with prices starting as low as $2,999.

Gather the whole gang. Powerful PC technology, digital television capabilities and everything you need to sled the Web are yours to enjoy for the holidays and the new year! Best of all, you can experience everything from the comfort of your couch. Your living room will become a hub for education, communication and entertainment. Call us today for more details on the Destination system and a digital satellite system offer* from DISH™ Network. It's such a great deal, this holiday season you won't even have to tighten your belt!

HOLIDAY BONUS! Free* DISH Network Digital Satellite System Offer. Call for details!

*For a limited time, Destination system purchases include a coupon for one DISH Network Satellite system (satellite receiver, 18-inch antenna with single LNBF, infrared remote control) at no charge with the purchase of a one-year subscription to a qualifying programming package from DISH Network for $300. Taxes, delivery and installation not included. Satellite system service covers 48 contiguous states and is supported by DISH Network. Residential use only.

intel inside
PENTIUM® PRO PROCESSOR

GATEWAY2000
"You've got a friend in the business."®

800-424-1462
www.gw2k.com

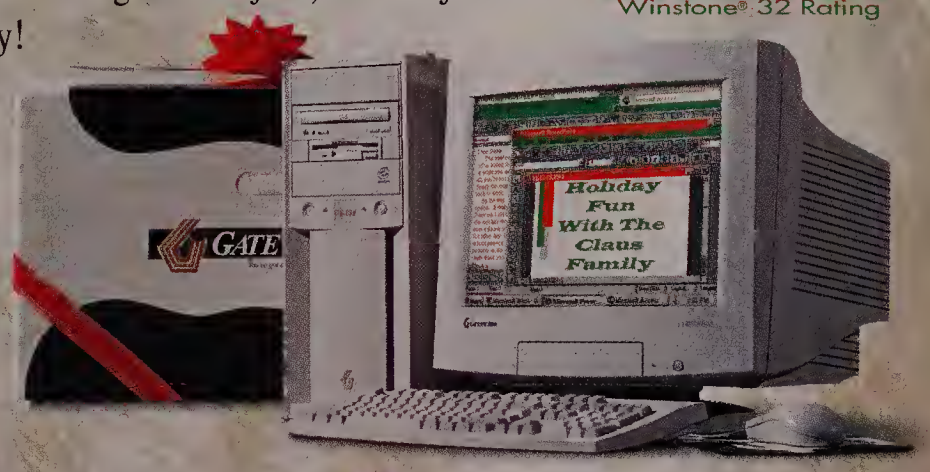
Top-Of-The-Line Technology!

Hats off to Santa for delivering the latest and greatest technology and outstanding values from Gateway 2000.

If you're looking for PC performance that will blow you away, you need Intel's next-generation Pentium® Pro processor — the smart choice for today's *and* tomorrow's 32-bit software. Microsoft® Office 95, Professional Edition* applications will fly like Santa at sunrise when powered by a Pentium Pro processor.

Need a Pentium processor-based PC? Look no further. Our professional Pentium processor-based systems are packed with features and they're priced right. Tell us your needs. We'll build a PC to your specifications and pre-install the software. You've been good this year, so treat yourself. Call Gateway today!

*For a limited time (with qualifying purchase) receive a coupon for a free MS Office 97, Professional Edition upgrade on CD after release from Microsoft.



intel inside
PENTIUM® PRO PROCESSOR

GATEWAY2000
"You've got a friend in the business."®

800-424-1462
www.gw2k.com

All The Bells And Whistles!

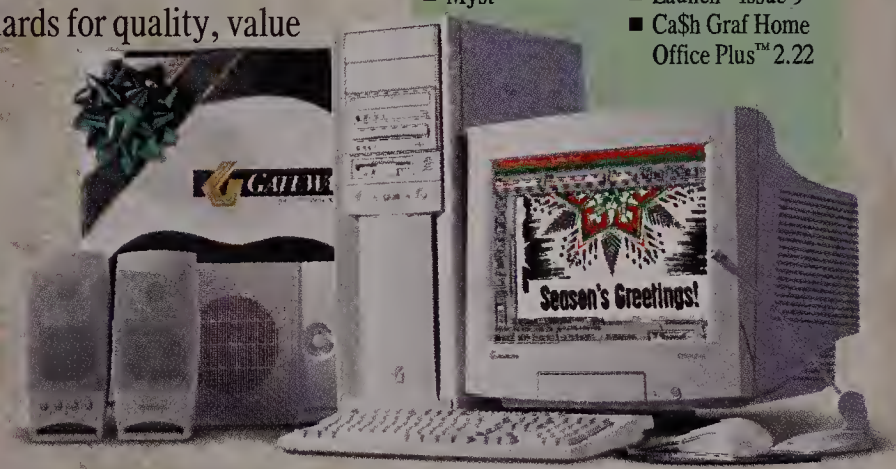
It's all here! Gateway is your one-stop shop for fully-loaded Family PC™ systems, XL multimedia computers and quality software.

The performance of an Intel Pentium® Pro processor, MS® Windows® 95 and Generations III has moved home for the holidays — and for years to come! Because we custom build each PC, you get a system that meets your needs *and* fits your budget. You choose from cool technology like Gateway exclusive Altec™ Lansing speakers, fast CD-ROM drives, CD-recordable drives, and hardware accelerated 3-D video for smooth gaming and animation graphics. Vivid images shine through on our CrystalScan®700 (15.9 viewable) monitors with advanced Microfilter™ picture tube technology.

It's a present the whole family will love! Plus, you can take advantage of a digital satellite system offer* from DISH™ Network. Ring in the new year with unmatched 32-bit performance and value. Add up software savings too. We offer additional specialized software bundles for every stocking! The Gateway Select program makes it easy by setting software standards for quality, value and ease of use.

Generations III

- MS® Encarta® 96
- MS Works 95
- MS Publisher 97
- Monopoly™
- Green Eggs and Ham
- Myst®
- MS Greetings Workshop
- MS Money 97
- Mayo Clinic® Family Health 3.0
- TripMaker™ 97
- Launch® Issue 9
- Ca$h Graf Home Office Plus™ 2.22



For a limited time, Destination system purchases include a coupon for one DISH Network Satellite system (satellite receiver, 18-inch antenna with single LNBF, infrared remote control) at no charge with the purchase of a one-year subscription to a qualifying programming package from DISH Network for $300. Taxes, delivery and installation not included. Satellite system service covers 48 contiguous states and is supported by DISH Network. Residential use only.

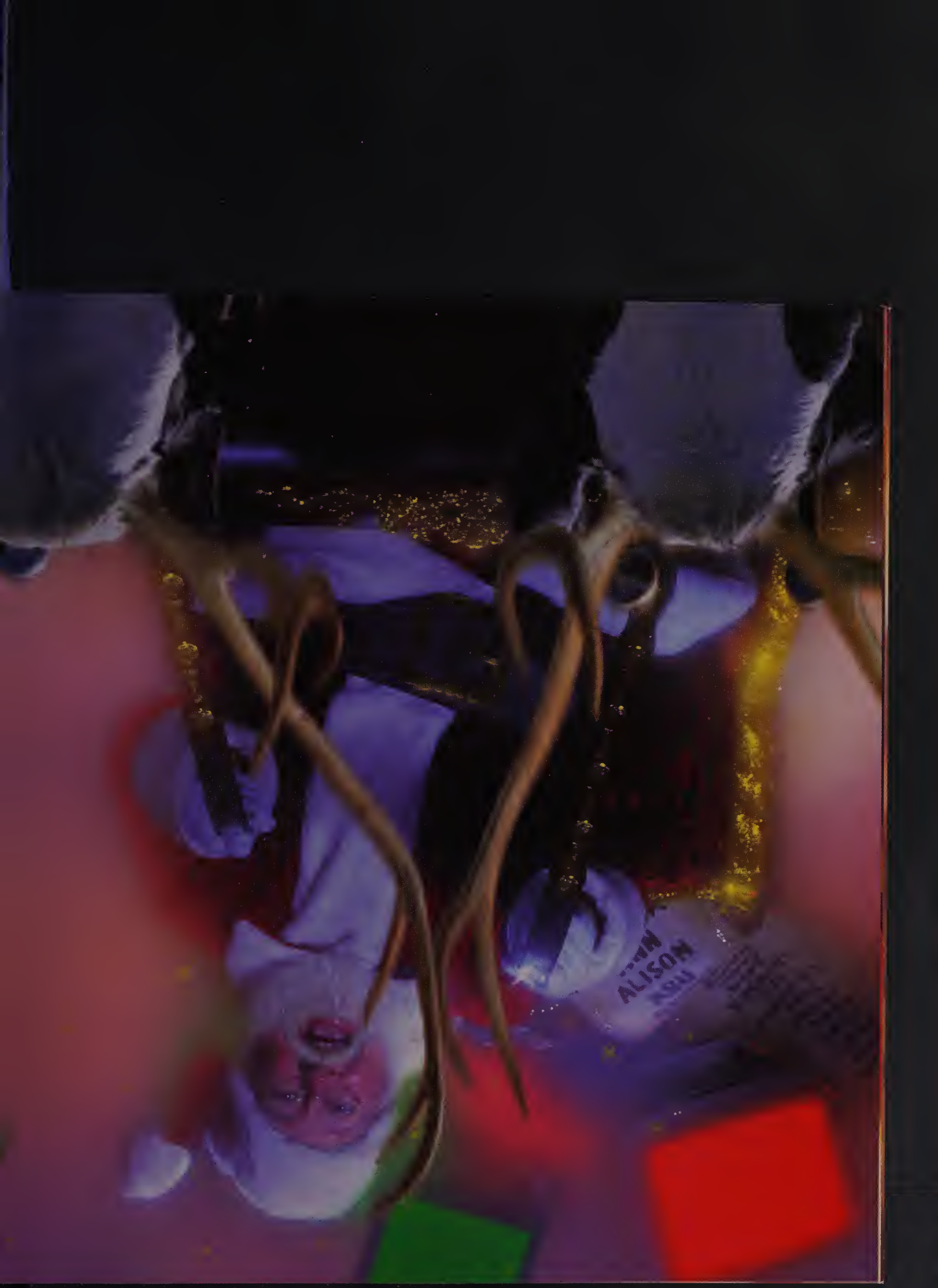
intel inside PENTIUM® PRO PROCESSOR

GATEWAY 2000

"You've got a friend in the business."®

800-424-1462

www.gw2k.com


ALISON

Holiday Goodies To Go!

Whether you're off on a delivery or headed home for the night, Gateway Solo™ 2100 multimedia portables really haul! Hand-pick the portable options you need. A powerful Intel Pentium® processor and Microsoft® Windows® 95 will get you off to a great start. Then choose the size of your screen, hard drive, memory, processor speed and either MS® Office 95 Professional Edition* or MS Works 95. Continue customizing your computer with the flexibility of modular components. It's easy to swap a CD-ROM drive for a floppy drive, and since they aren't built in you have less weight to carry around. Plus, a removable hard drive makes it a snap to secure data. Steer clear of companies that leave you without options. Wherever you need to be, Gateway Solo 2100 portables deliver power-packed performance at a great value!

*For a limited time (with qualifying purchase) receive a coupon for a free MS Office 97, Professional Edition upgrade on CD after release from Microsoft.

intel inside pentium PROCESSOR

GATEWAY2000

"You've got a friend in the business."®

800-846-2040

www.gw2k.com

We're
Delivering Magic This Year!
intel inside
PENTIUM PRO
PROCESSOR

Gateway makes holiday shopping *seem* like magic.
Along with high-performance, quality PCs, we bring you good tidings of a new financing option, available exclusively to Gateway customers — past and present.

Gateway Easy Pay Plan

- No payments for 90 days
- Fixed monthly payments
- Borrow $1,000 to $25,000
- Quick credit approval

Gateway accepts most major credit cards and C.O.D. terms. Qualified commercial customers can choose from net 30-day credit terms or leasing options as well. We'll go out of our way to light up your holidays. In fact, if you aren't totally satisfied, you can return your PC within 30 days of the original delivery date for a refund of the purchase price (shipping charges to and from the customer are not refundable). Plus, we have a great limited warranty — just call or write for details. Gateway knows how to deliver satisfaction. In the October *FamilyPC* magazine, 94% of the Gateway customers surveyed said they'd recommend their Gateway system to a friend. Give us a jingle. We'll make *your* holidays merry!

The Gateway Easy Pay Plan is issued and administered by MBNA America® Bank, N.A.

GATEWAY 2000

"You've got a friend in the business."®

800-424-1462

www.gw2k.com

Holiday Upgrades!

Wrap up your holidays here! The finishing touches you need to complete and complement your computer are available with the purchase of any GATEWAY 2000® PC. We'll pre-install these upgrades for you and deliver your system right to your doorstep — just like Santa.

Altec Lansing ACS-410 Speaker System with Subwoofer

Desktop Upgrades

- **Altec™ Lansing ACS-251 Subwoofer $75**
- **Altec Lansing ACS-410 Speaker System w/ ACS-251 Subwoofer $120**
  (upgrade from PCs that include Altec ACS-41 speakers)
- **12X CD-ROM Drive $50**
  (upgrade from PCs that include 8X CD-ROM drives)
- **CD-Recordable Drive $499**
  4X read/2X write recordable CD drive with SCSI controller, CD Creator 2 for MS® Windows® and three media disks.
- **Iomega® Ditto™ 3200 Internal Tape Backup Unit $199**
  3200MB with compression, nominal 1600MB
- **Iomega External Zip™ 100MB Drive $199**
  (less $50 manufacturer rebate)
- **Iomega Jaz™ 1GB Drive $429**
  (includes SCSI controller and 1GB cartridge)
- **MS Windows NT® 4.0 Upgrade $99**
  (upgrade from PCs that include MS Windows 95)

Gateway Solo 2100 Mini Docking Bar

Portable PC Upgrades

- Gateway Solo™ 2100 Mini Docking Bar **$199**
- 28.8 PCMCIA Fax/Modem **$200**
- Upgrade 120MHz to 133MHz Intel® Pentium® Processor **$150**
- Upgrade 133MHz to 150MHz Intel Pentium Processor **$150**
- Upgrade from an 11.3" Dual Scan to an 11.3" Active Matrix SVGA color display **$380**
- Upgrade from an 11.3" Active Matrix to a 12.1" Active Matrix SVGA color display **$150**

harman/kardon High-Fidelity Sound System

Destination™ Big Screen PC Upgrades

- **harman/kardon High-Fidelity Sound System**
  Seven-piece Dolby® Pro Logic® Surround Sound speaker system including AVR-10 audio/video receiver with remote, subwoofer, center channel, and four satellites for the ultimate multimedia audio experience. **$699**

Stocking Stuffers!

Visions of peripherals dancing in your head? You've ome to the right spot! But remember, these offers are vailable only for GATEWAY™ PC owners — both old and ew. If you'd like to see our complete line of stocking tuffers, call component add-on sales at 800-846-2080. ales Hours: 7am-10pm Weekdays (CT).

GATEWAY SELECT

Gateway software bundles will make your holidays merry. We've taken the work out of shopping for software. Our new Gateway Select program ensures that you're getting software that meets or exceeds our standards for quality, value and ease of use. There's something for everyone! At these prices, why not buy two?

Software

- **Games & Entertainment Pack**
  Includes Su-27 FLANKER™; Al Unser Jr. Arcade Racing™; 3-D Ultra Pinball™; The Journeyman Project 2®: Buried in Time™; Greg Norman Ultimate Challenge® Golf; Windows 95 Game Sampler and game pad. **$99**
- **Kid's BackPack™ III**
  ncludes Schoolhouse Rock!™: Grammar Rock™; Sesame Street: Get Set o Learn®; Math Blaster® Episode 2: Secret of the Lost City; Imo & The King™; Putt-Putt® Goes To The Moon™; and Gateway cow-spotted ackpack. **$59**
- **Finance Pack** *(U.S. Shipment Only)*
  ncludes Quicken® Deluxe 5, Quicken Financial Planner,™ Quicken Family Lawyer,™ and Quicken Parents' Guide to Money.™ **$69**

Great Extras

- MS SideWinder™ 3D Pro Joystick **$59**
- SKYMASTER Joystick **$39**
- Snappy™ Video Snapshot **$199**
- Epson PhotoPC™ Color Digital Camera **$399**
- Microsoft Natural® Keyboard **$59**

Printers

Put the finishing touch on your computing package with one of these quality printers. Ask your sales representative which one is right for you. All printers include cables and ink cartridges.

- Epson® Stylus™ Color 200 Ink Jet Printer **$179**
- Canon® BJC®-240 Bubble Jet™ Printer **$189**
- Epson Stylus Color 500 Ink Jet Printer **$279**
- Canon BJC-70 Portable Bubble Jet Printer **$299**
- Hewlett®-Packard 682C Ink Jet Printer **$299**
- Epson Stylus Pro Ink Jet Printer **$379**
- Hewlett-Packard LaserJet 5L Xtra Laser Printer **$479**
  (less $50 manufacturer rebate)
- Hewlett-Packard LaserJet 6P Laser Printer **$799**

Service & Support

Gateway Gold™ Premium for Desktop Systems

- Extended Three-Year On-Site Agreement*
- Priority 800 Number For Access to Technical Experts
  With system purchase **$99**
  Within term of current on-site service agreement **$129**

**On-site service is available to most locations in the continental United States, Alaska, Hawaii, Puerto Rico and Canada after you and your Gateway technician determine an on-site visit is necessary. On-site service is provided by PC Technology Services, Inc. On-site is not available for any monitor, mouse, keyboard, or portable system. Write or call for a free copy of the on-site service agreement.*

800-424-1462

www.gw2k.com

P5-133 FAMILY PC

- Intel® 133MHz Pentium® Processor
- 16MB Synchronous DRAM
- CrystalScan®500 .28dp Monitor (13.9" viewable area)
- 2MB SGRAM, 3-D 64-Bit PCI Graphics
- 1.2GB 11ms EIDE Hard Drive
- 8X CD-ROM/3.5" Diskette Drives
- 16-Bit GATEWAY™ Sound
- Altec™ Lansing ACS-41 Speakers
- TelePath® 33.6 Data*/14.4 Fax Modem *for Windows* with Speakerphone
- 7-Bay Mini Tower Case
- 104+ Keyboard & MS® Mouse 2.0
- Microsoft® Windows® 95
- Generations III Software Collection
- Gateway Gold™ Service & Support for Desktop PCs
- DISH™ Network Satellite System Offer**

$1699 As low as× $48/mo.

P5-166 FAMILY PC

- Intel 166MHz Pentium Processor
- 16MB Synchronous DRAM
- 256K Pipelined Burst Cache
- CrystalScan700 .28dp Monitor (15.9" viewable area)
- 2MB SGRAM, 3-D 64-Bit PCI Graphics
- 2.5GB 11ms EIDE Hard Drive
- 8X CD-ROM/3.5" Diskette Drives
- 16-Bit Gateway Sound
- Altec Lansing ACS-41 Speakers
- TelePath 33.6 Data*/14.4 Fax Modem *for Windows* with Speakerphone
- 7-Bay Mini Tower Case
- 104+ Keyboard & MS Mouse 2.0
- MS Windows 95
- Generations III Software Collection
- Gateway Gold Service & Support for Desktop PCs
- DISH Network Satellite System Offer**

$2199 As low as× $62/mo.

P5-200 FAMILY PC

- Intel 200MHz Pentium Processor
- 32MB Synchronous DRAM
- 256K Pipelined Burst Cache
- CrystalScan700 .28dp Monitor (15.9" viewable area)
- 2MB SGRAM, 3-D 64-Bit PCI Graphics
- 2.5GB 11ms EIDE Hard Drive
- 12X CD-ROM/3.5" Diskette Drives
- 16-Bit Ensoniq® Wavetable Sound Card
- Altec Lansing ACS-41 Speakers
- TelePath 33.6 Data*/14.4 Fax Modem *for Windows* with Speakerphone
- 7-Bay Mini Tower Case
- 104+ Keyboard & MS Mouse 2.0
- MS Windows 95
- Generations III Software Collection
- Gateway Gold Service & Support for Desktop PCs
- DISH Network Satellite System Offer**

$2499 As low as× $70/mo.

G6-180 FAMILY PC

- Intel 180MHz Pentium Pro Processor
- 32MB EDO DRAM
- 256K Internal Cache
- CrystalScan700 .28dp Monitor (15.9" viewable area)
- 2MB SGRAM, 3-D 64-Bit PCI Graphics
- 2.5GB 11ms EIDE Hard Drive
- 12X CD-ROM/3.5" Diskette Drives
- 16-Bit Ensoniq Wavetable Sound Card
- Altec Lansing ACS-41 Speakers
- TelePath 33.6 Data*/14.4 Fax Modem with Speakerphone
- 7-Bay Mini Tower Case
- 104+ Keyboard & MS Mouse 2.0
- MS Windows 95
- Generations III Software Collection
- Gateway Gold Service & Support for Desktop PCs
- DISH Network Satellite System Offer**

$2499 As low as× $70/mo.

G6-200 FAMILY PC

- Intel 200MHz Pentium Pro Processor
- 64MB EDO DRAM
- 256K Internal Cache
- CrystalScan700 .28dp Monitor (15.9" viewable area)
- STB® ViRGE™/VX 4MB, 3-D 64-Bit PCI Graphics
- 3.8GB 11ms EIDE Hard Drive
- 12X CD-ROM/3.5" Diskette Drives
- 16-Bit Ensoniq Wavetable Sound Card
- Altec Lansing ACS-41 Speakers
- TelePath 33.6 Data*/14.4 Fax Modem with Speakerphone
- 12-Bay Tower Case
- 104+ Keyboard & MS Mouse 2.0
- MS Windows 95
- Generations III Software Collection
- Gateway Gold Service & Support for Desktop PCs
- DISH Network Satellite System Offer**

$2999 As low as× $84/mo.

G6-200XL

- Intel 200MHz Pentium Pro Processor
- 64MB EDO DRAM
- 256K Internal Cache
- CrystalScan700 .28dp Monitor (15.9" viewable area)
- STB ViRGE/VX 8MB, 3-D 64-Bit PCI Gra
- 3.8GB 11ms EIDE Hard Drive
- 8X CD-ROM/3.5" Diskette Drives
- **CD-Recordable w/ SCSI Controller**
- 16-Bit Ensoniq Wavetable Sound Card
- Altec ACS-410 & ACS-251 Speakers
- TelePath 33.6 Data*/14.4 Fax Modem with Speakerphone
- 12-Bay Tower Case
- 104+ Keyboard & MS Mouse 2.0
- MS Windows 95
- MS Office 95, Professional Edition
- MS Office 97, Professional Edition Upgrade Coupon◆
- Generations III Software Collection
- Gateway Gold Premium Service & Support for Desktop PCs
- DISH Network Satellite System Offer**

$3799 As low as× $106/mo.

Professional Systems

P5-133

Intel 133MHz Pentium Processor
16MB Synchronous DRAM
256K Pipelined Burst Cache
CrystalScan500 .28dp Monitor (13.9" viewable area)
2MB SGRAM, 3-D 64-Bit PCI Graphics
2.5GB 11ms EIDE Hard Drive
8X CD-ROM/3.5" Diskette Drives
7-Bay Mini Tower Case
104+ Keyboard & MS Mouse 2.0
MS Windows 95
MS Office 95, Professional Edition
MS Office 97, Professional Edition Upgrade Coupon◆
Gateway Gold Service & Support for Desktop PCs

$1699 Business Lease† $63/mo.

G6-200

- Intel 200MHz Pentium Pro Processor
- 32MB EDO DRAM
- 256K Internal Cache
- Vivitron700 .26dp Monitor (15.9" viewable area)
- STB ViRGE/VX 4MB, 3-D 64-Bit PCI Graphics
- 3.8GB 11ms EIDE Hard Drive
- 12X CD-ROM/3.5" Diskette Drives
- 12-Bay Tower Case
- 104+ Keyboard & MS Mouse 2.0
- MS Windows 95
- MS Office 95, Professional Edition
- MS Office 97, Professional Edition Upgrade Coupon◆
- Gateway Gold Service & Support for Desktop PCs

$2699 Business Lease† $99/mo.

P5-166

- Intel 166MHz Pentium Processor
- 32MB Synchronous DRAM
- 256K Pipelined Burst Cache
- CrystalScan700 .28dp Monitor (15.9" viewable area)
- 2MB SGRAM, 3-D 64-Bit PCI Graphics
- 2.5GB 11ms EIDE Hard Drive
- 8X CD-ROM/3.5" Diskette Drives
- 7-Bay Mini Tower Case
- 104+ Keyboard & MS Mouse 2.0
- MS Windows 95
- MS Office 95, Professional Edition
- MS Office 97, Professional Edition Upgrade Coupon◆
- Gateway Gold Service & Support for Desktop PCs

$2299 Business Lease† $85/mo.

**Maximum data transfer rate dependent on certain variables including particular modems with which you are communicating, telephone lines, communications software and communications protocols.*

◆For a limited time (with qualifying purchase) receive a coupon for a free MS Office 97, Professional Edition upgrade on CD after release from Microsoft. Call for details!

Gateway 2000 Quality Manufacturing Systems for Customer Hardware Support, Sioux Falls, South Dakota; Desktop & Portable Manufacturing Divisions and Remanufacturing in North Sioux City, South Dakota, are ISO 9002 certified.

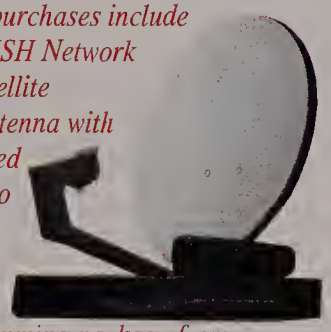
GSA Schedule #GS-35F-3349D

G6-180

- Intel 180MHz Pentium Pro Processor
- 32MB EDO DRAM
- 256K Internal Cache
- Vivitron®700 .26dp Monitor (15.9" viewable area)
- 2MB SGRAM, 3-D 64-Bit PCI Graphics
- 3.8GB 11ms EIDE Hard Drive
- 12X CD-ROM/3.5" Diskette Drives
- 7-Bay Mini Tower Case
- 104+ Keyboard & MS Mouse 2.0
- MS Windows 95
- MS Office 95, Professional Edition
- MS Office 97, Professional Edition Upgrade Coupon◆
- Gateway Gold Service & Support for Desktop PCs

$2499 Business Lease† $92/mo.

***For a limited time, Destination and Gateway multimedia system purchases include a coupon for one DISH Network Satellite system (satellite receiver, 18-inch antenna with single LNBF, infrared remote control) at no charge with the purchase of a one-year subscription to a qualifying programming package from DISH Network for $300. Taxes, delivery and installation not included. Satellite system service covers 48 contiguous states and is supported by DISH Network. Residential use only.*



"You've got a friend in the business."®

800-424-1462

www.gw2k.com

Toll free from Canada 800-846-3609

Toll free from Puerto Rico 800-846-3613

610 Gateway Drive • P.O. Box 2000 • N. Sioux City, SD 57049-2000 • Phone 605-232-2000 • TDD 800-846-1778 • Fax 605-232-2023 • FaxBack 800-846-4526 • International FaxBack Access 605-232-2561
Component Add-On Sales 800-846-2080 • Sales Hours: 7am-10pm Weekdays, 9am-5pm Saturdays & Sundays (CT)

© 1996 Gateway 2000, Inc. GATEWAY 2000, CrystalScan, black-and-white spot design, Field Mouse, "G" logo, TelePath, Vivitron and "You've got a friend in the business" slogan are registered trademarks, and Destination, EZ Pad, Family PC, GATEWAY, Gateway Gold and Gateway Solo are trademarks of Gateway 2000, Inc. The Intel Inside Logo, Intel and Pentium are registered trademarks of Intel Corporation. All other brands and product names are trademarks or registered trademarks of their respective companies. All prices and configurations are subject to change without notice or obligation. Prices do not include shipping or applicable sales tax. Many Gateway 2000 products are custom engineered to Gateway 2000 specifications, which may vary from the retail versions of the software and/or hardware in functionality, performance or compatibility. *Financing available on approved credit issued and administered by MBNA America® Bank, N.A. Payments based on 48-month term at 14.9% Annual Percentage Rate. †Leasing arranged by independent leasing companies to qualified commercial customers. Lease payments based on 36-month term. Lease terms subject to change without notice or obligation. Each P5 tested system included an Intel Pentium processor. The P5-166 and P5-200 have 166MHz and 200MHz processors respectively. G6 systems included Pentium Pro processors. The G6-180 and G6-200 have 180MHz and 200MHz processors respectively. Ziff-Davis' Winstone 32 version 1.0 overall scores were achieved on the P5-166, P5-200, G6-180 and G6-200 using 32MB DRAM, 3.8GB hard drive, and Matrox Mystique video adapter 2MB SGRAM with 4.14.0281 driver refresh rate of 75Mz, Toshiba 8X IDE controller with no controller RAM cache and no CD-ROM specific software cache, vcache, and 640x480 pixels, 256 colors. All systems were tested using MS Windows 95 Enhanced Mode with paging. All products used in these tests can be shipped to the consumer as a custom configuration. The Winstone 32 test was performed without independent verification by Ziff-Davis. Winstone is a registered trademark of Ziff-Davis Publishing Company, L.P.

Destination™ Big Screen PCs

D5-133

- Intel® 133MHz Pentium® Processor
- 32MB Synchronous DRAM
- 256K Pipelined Burst Cache
- Destination 31" VGA Monitor
- STB® 2MB VRAM Graphics Accelerator w/ Cable-Ready TV Tuner
- 2.5GB 11ms EIDE Hard Drive
- 8X CD-ROM/3.5" Diskette Drives
- 16-Bit Ensoniq® Wavetable Sound Card
- TelePath® 33.6 Data*/14.4 Fax Modem
- 7-Bay Charcoal-Colored PC Case
- Wireless Keyboard w/ Integrated EZ Pad™ Pointing Device
- Wireless Field Mouse® Remote
- Four-Channel RF Receiver
- Microsoft® Windows® 95
- Destination Software Collection
- Gateway Gold™ Service and Support✚ for Big Screen PCs
- DISH™ Network Satellite System Offer**

$2999 As low as× $84/mo.

D6-180

- Intel 180MHz Pentium Pro Processor
- 32MB EDO DRAM
- 256K Internal Cache
- Destination 31" VGA Monitor
- STB 2MB VRAM Graphics Accelerator w/ Cable-Ready TV Tuner
- 2.5GB 11ms EIDE Hard Drive
- 12X CD-ROM/3.5" Diskette Drives
- 16-Bit Ensoniq Wavetable Sound Card
- ▸ **harman/kardon High-Fidelity Sound System**
- TelePath 33.6 Data*/14.4 Fax Modem
- 7-Bay Charcoal-Colored PC Case
- Wireless Keyboard w/ Integrated EZ Pad Pointing Device
- Wireless Field Mouse Remote
- Four-Channel RF Receiver
- MS® Windows 95
- Destination Software Collection
- Gateway Gold Service and Support✚ for Big Screen PCs
- DISH Network Satellite System Offer**

$3999 As low as× $112/mo.

D6-200

- Intel 200MHz Pentium Pro Processor
- 64MB EDO DRAM
- 256K Internal Cache
- Destination 31" VGA Monitor
- STB 2MB VRAM Graphics Accelerator w/ Cable-Ready TV Tuner
- 3.8GB 11ms EIDE Hard Drive
- 12X CD-ROM/3.5" Diskette Drives
- 16-Bit Ensoniq Wavetable Sound Card
- ▸ **harman/kardon High-Fidelity Sound Sys**
- TelePath 33.6 Data*/14.4 Fax Modem
- 7-Bay Charcoal-Colored PC Case
- Wireless Keyboard w/ Integrated EZ Pad Pointing Device
- Wireless Field Mouse Remote
- Four-Channel RF Receiver
- MS Windows 95
- Destination Software Collection
- Gateway Gold Premium Service and Support✚ for Big Screen PCs
- DISH Network Satellite System Offer**

$4499 As low as× $125/mo.

Gateway Solo™ 2100 Portable PCs

S5-120

- 11.3" Dual Scan SVGA Color Display
- Intel 120MHz Pentium Processor
- 16MB EDO DRAM expandable to 40MB
- 256K Pipelined Burst Cache
- 1MB EDO Video RAM
- Zoomed Video Port
- 810MB Hard Drive
- Modular 6X CD-ROM Drive
- Modular 3.5" Diskette Drive
- 16-Bit Sound & Stereo Speakers
- NiMH Battery & AC Pack
- 85-Key MS Windows 95 Keyboard
- Carrying Case
- MS Windows 95
- MS Works 95
- Gateway Gold Service and Support for Portable PCs

$2499 As low as× $70/mo.

S5-133

- 11.3" Active Matrix SVGA Color Display
- Intel 133MHz Pentium Processor
- 24MB EDO DRAM expandable to 40MB
- 256K Pipelined Burst Cache
- 1MB EDO Video RAM
- Zoomed Video Port
- 1.3GB Hard Drive
- Modular 6X CD-ROM Drive
- Modular 3.5" Diskette Drive
- 16-Bit Sound & Stereo Speakers
- Lithium Ion Battery & AC Pack
- 85-Key MS Windows 95 Keyboard
- Carrying Case
- MS Windows 95
- MS Office 95, Professional Edition◆
- Gateway Gold Service and Support for Portable PCs

$3549 As low as× $99/mo.

S5-133 Best Buy

- 12.1" Active Matrix SVGA Color Display
- Intel 133MHz Pentium Processor
- 40MB EDO DRAM
- 256K Pipelined Burst Cache
- 1MB EDO Video RAM
- Zoomed Video Port
- 1.3GB Hard Drive
- Modular 6X CD-ROM Drive
- Modular 3.5" Diskette Drive
- 16-Bit Sound & Stereo Speakers
- 28.8 PCMCIA Fax/Modem
- Lithium Ion Battery & AC Pack
- 85-Key MS Windows 95 Keyboard
- Carrying Case
- MS Windows 95
- MS Office 95, Professional Edition◆
- Gateway Gold Service and Support for Portable PCs

$4149 As low as× $116/mo.

intel inside
PENTIUM® PRO PROCESSOR

***DISH Network Satellite system offer and ◆MS Office 97, Professional Edition upgrade coupon details on previous page.*
✚The Destination 31" monitor is covered by a one-year limited warranty.

GATEWAY2000
"You've got a friend in the business."®

800-424-1462

www.gw2k.com

**Maximum data transfer rate dependent on certain variables including particular modems with which you are communicating, telephone lines, communications software and communications protocols.*
×Financing available on approved credit issued and administered by MBNA America Bank®, N.A. Payments based on 48-month term at 14.9% Annual Percentage Rate.

NORTH
POLE
Happy
Holidays
from
GATEWAY2000
You've got a friend in the business.®

NEW PRODUCTS

IBM's Vision of Home Fashion: Aptiva S Series PCs

IBM'S APTIVA S series has fancy designs and fancy prices.

DESKTOP

IN THE PC MARKET, home is where the heart of design innovation may be. Consider the sleek new designs from Compaq, Sony, and Toshiba, which added consumer electronics features to fast Pentium PCs. Now IBM's new **Aptiva S** series delivers systems with unique space-saving designs and strong software bundles including Lotus SmartSuite, telephony applications, and games.

You won't mistake the Aptiva S for a home PC of old. The monitor sits above the desktop on a tubular base, and it sports a microphone and a pair of speakers on either side of the display. The real innovation, however, is the slim media console situated beneath the monitor and connected to the minitower via a 6-foot cable. Push a button on top of the console, and the 8X CD-ROM drive and floppy drive emerge to allow easy, desk-level access. The result: no ugly system unit on your desk, no straining to reach an out-of-the-way CD-ROM drive, and no moving the keyboard to clear access to a floppy drive.

When you aren't using the system, the Aptiva keyboard tucks beneath the monitor, resting on top of the closed media console. A cordless mouse helps to eliminate unsightly wires. The mouse uses radio signals, which lets it work even when other objects are blocking the visual path between it and the PC.

A ROSE BY ANY OTHER NAME

FOR ALL ITS design tweaks, though, the Aptiva S consists of the familiar PC components: A standard minitower—in black—contains the CPU, memory, hard disk, and add-in slots and bays. The $3148 Aptiva S66 that I tested packs 16MB of RAM, a 256K secondary cache, a 3.2GB hard drive, and a 15-inch monitor. An ATI 3D Rage graphics chip provides 2-D and 3-D Windows graphics acceleration, while a 33.6-kbps voice-capable modem supports quick Internet access. The system also features a joystick for game play. In the PC WorldBench test suite, the Aptiva S displayed average performance for a Pentium-166 PC of its general configuration.

Clearly IBM has done its homework, but the Aptiva S does have several drawbacks. Most noticeably, the media console cannot accept additional drives. An internal CD-Recorder or tape drive must be installed in the minitower. Also, though the cordless radio mouse is a nice touch, the keyboard remains tethered to the minitower. And the mouse, keyboard, and joystick all use separate ports, despite the presence of a Universal Serial Bus port on the back of the minitower.

The street price of $3148 with monitor is not low: IBM figures it can get a premium for this Aptiva, as does Sony with its similarly priced Sony PCV-70 home system. Toshiba's similar Inifinia 710 costs $700 less. Still, IBM's three-year warranty and its strong reliability and service scores in *PC World*'s monthly fax-back surveys add value.

—*Michael Desmond*

IBM Aptiva S66

PRO: Excellent design, handy console with CD-ROM and floppy drives.

CON: Average performance; can't add to console unit.

VALUE: You pay quite a premium for this design.

IBM

800/426-7235

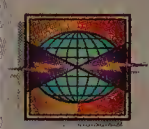
http://www.pc.ibm.com/aptiva

Street price: $3148 with monitor

CONTENTS

82 IBM Aptiva S66 home PC
83 HP LaserJet 5Si Mopier
84 Toshiba multimedia notebooks
84 IBM ThinkPad notebooks
84 Cash machine locator
86 Adobe Persuasion 4.0
86 HiJaak Pro 4.0 for Windows 95
86 Quarterdeck Procomm Plus for Windows 95
90 DecideRight 1.2, SureFire Decisions software
90 Microsoft Team Manager 97
92 Cirque Input Center
92 Pro CD Select Phone Deluxe
92 ViewSonic P815 monitor
94 Norton Utilities 2.0
94 ProZip file-compression tool
94 MicroHelp UnInstaller 4
96 Business Maestro analysis software
96 Big Business 2.0 suite
100 Bryce 2, Detailer 1.0 3-D graphics programs
100 CorelDraw 7
102 Compass 3800
102 PointCast Network 1.1
104 Internet Music Kit, Roland Virtual SoundCanvas Music Pack, Sound Bar audio programs
104 HTML Transit 2.0

INTERNET



FOR MORE PRODUCT news and the latest announcements, check out the PC World Daily News Service at **http://www.pcworld.com/news.html.**

Meet the Mopier—HP Laser That Collates, Staples, and Sorts

PRINTER

THE OFFICE COPIER isn't the hot gossip spot it used to be—many people have found they can make multiple copies of a document faster on the network laser printer. Printer companies call this *mopying*, "multiple original printing." Now HP has introduced the **LaserJet 5Si Mopier,** a first-of-breed printer that allows multiple original printing without clogging the local area network. This 24-ppm laser with 600-dpi resolution also performs jobs other network lasers can't: It collates, staples, and sorts print jobs into a five-bin mailbox. (Some printers accept add-on mailboxes, but most are expensive and bulky.) The Mopier is street-priced at about $8900, a big jump from HP's $4599 LaserJet 5SiMx.

For large offices that generate a high volume of multiple-page documents, the HP LaserJet 5Si Mopier offers substantial benefits. We did not receive a shipping unit in time to test, so we can't comment on speed. But otherwise, the convenience of the unit is obvious: With two 500-sheet trays, a 100-sheet multipurpose tray, and a 2000-sheet input tray, the Mopier holds up to 3100 sheets of paper and has a duplexing unit for two-sided printing. And you can use duplex printing with the included HP software to make booklets.

Mopying print jobs don't clog your local area network, because of HP's new "transmit once" spooling technology, which keeps the network traffic low. The unit receives and stores information on a 420MB internal hard drive; then it outputs the appropriate number of prints. You can use the hard drive to store forms, as well. The Mopier comes with an HP JetDirect print-server card (for Ethernet and LocalTalk networks) and HP's JetAdmin software. The machine has 12MB of RAM, expandable to 76MB.

SMARTER LASER: HP'S LaserJet 5Si Mopier offers advanced document handling.

HP also offers owners of LaserJet 5SiMX printers a $1279 Mopy Upgrade Kit that adds the new capabilities to their existing units. (The kit includes software, a 420MB hard drive, and a few boards to be installed inside the printer.) To get the new paper-handling options, upgraders must pay for the 2000-sheet input tray ($1299); duplex unit ($669); multibin mailbox ($1889); and envelope feeder ($549).

The new LaserJet 5Si Mopier won't eliminate the need for a copier, but this printer should make it easier and faster to print many copies of a multipage document, such as a presentation. And industry analysts say that you'll save money if you use a printer more than a copier.

If you generate 6000 pages per month, Mopier pages cost 5.5 cents each, HP says, while copier pages cost 6.5 to 10.3 cents each. At 8000 pages per month, Mopier output runs about 4.7 cents per page, compared to 5.6 to 8.7 cents per page for an average copier's output. And at 10,000 pages per month, Mopier production costs 4.2 cents per page versus 5.1 to 7.7 cents for copier production. (HP estimates per-page costs by factoring in supplies and maintenance costs.) "It doesn't eliminate the copier cost, but it grabs some of the volume and should cost you less per page," says Keith Kmetz, an IDC research manager. Additional network lasers that come standard with collating, stapling, and sorting features should appear in early 1997, Kmetz says.

—*Laurianne McLaughlin* ▶

HP LaserJet 5Si Mopier

PRO: Multiple print jobs won't clog your network; has innovative paper handling.

CON: Reduces copier usage, but doesn't eliminate need for one altogether.

VALUE: Solid choice from industry leader Hewlett-Packard.

Street price: $8900

Hewlett-Packard

800/752-0900

http://www.hp.com

READER SERVICE NO. 754

EDITED BY
Laurianne McLaughlin

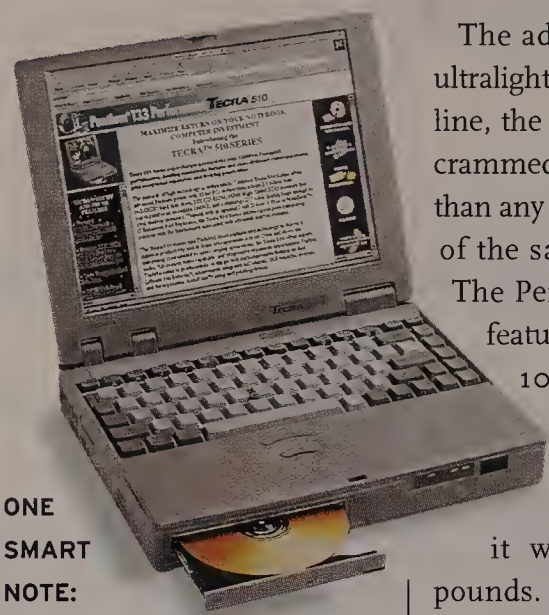
Toshiba Notebooks: Brawn and Bargain Prices

NOTEBOOK

TO BOLSTER ITS multimedia offerings, **Toshiba** has developed new models for each of its four notebook families. Each incorporates features conspicuously absent from previous Toshiba notebooks, plus cutting-edge technologies.

The lower-end Satellite 200CDS unit and the Satellite Pro 430 series (available in active and dual-scan screen versions) offer 16-bit sound and faster processors, and they support the new Zoomed Video PC Cards, which promise faster full-screen video. The 7.9-pound Satellite 200CDS includes a Pentium-100 CPU and 6X CD-ROM drive for $1999. Units were not available for performance testing at press time.

The Satellite Pro 430s will be the first notebooks on the market to feature a 10X CD-ROM drive. The Satellite Pro 430CDS has a Pentium-120 processor and an 11.3-inch dual-scan screen for $2499.



ONE SMART NOTE: Toshiba's Tecra line just got better.

Its active-matrix sibling, the Satellite Pro 430CDT will hit the street at around $3399. Both units weigh about 7.4 pounds. You'll be hard pressed to find better multimedia notebooks at these prices.

The addition to Toshiba's ultralight, ultrapacked Portégé line, the Portégé 660CDT, is crammed with more features than any competing notebook of the same size can boast. The Pentium-150 machine features Zoomed video, a 10X CD-ROM drive, and an 11.3-inch active-matrix screen—and in all, it weighs less than 5 pounds. But your wallet had better be heavy: This unit costs around $4999.

The $4999 Tecra 510CDT and $3699 Tecra 510CDS—Pentium-133 additions to Toshiba's high-end line—come with a 12.1-inch dual-scan or active-matrix screen, and a 10X CD-ROM drive. The 8.2-pound 510s also feature convenient built-in AC adapters, which preclude the dreaded brick-on-a-leash syndrome.

—Eric Hellweg

Toshiba Satellite 200CDS, Satellite Pro 430CDS and 430CDT, Portégé 660CDT, and Tecra 510CDS and 510CDT

PRO: More multimedia punch for roughly the same price as previous Toshiba models.

CON: Portégé models still expensive.

VALUE: Proven notebook leader offers impressive new choices.

Toshiba Computer Systems Division

800/334-3445

http://www.computers.toshiba.com

Street prices: $1999 to $4999

READER SERVICE NO. 755

QUICK TAKES

Bank Spotting

Even if you use travelers checks when you're on the road, there are times when you need some quick cash. Internationally, Visa charge cards and ATM debit cards that support the Plus network are accepted in cash machines in more than 102 countries. Here's a tip for finding these cash machines: Before you leave on your next trip, check out Visa's online listing of ATM locations (http://visa.infonow.net/powersearch.html). For U.S. locations, just enter an address or a zip code, and up pops a map of your query location with the three nearest ATMs. The map also provides addresses, institution names, and phone numbers.

IBM Improves ThinkPad 365 and 760 Lines

NOTEBOOK

IBM SUCCESSFULLY bundles more features for less money in its newest **ThinkPad 365 and 760** notebooks. In both lines, IBM added bigger hard drives, larger displays, and faster CD-ROM drives.

The affordable $2499 ThinkPad 365X has an 11.3-inch dual-scan screen, 1.08GB hard disk, and no CD-ROM drive. (Base configurations carry only 8MB of RAM, but you can upgrade to 16MB of memory for $115.) The $3499 6.2-pound ThinkPad 365XD, which we tested with 16MB of RAM, registered average performance on the PC WorldBench tests. But this 133-MHz Pentium notebook includes a 1.35GB hard drive, a 6X CD-ROM drive, and an impressive 11.3-inch active-matrix display. It's a cost-effective business notebook.

If you need more powerful performance, consider IBM's $5699 ThinkPad 760E and $5999 760ED models.

The 6.2-pound 760E and the 6.7-pound 760ED are equipped with P-150 and P-133 processors, respectively, and 16MB of RAM. Removable hard drives for both models range in size from 1.08GB to 2.1GB; and with the UltraBay (a free internal bay), you can add a second battery or hard drive. A 12.1-inch active matrix XGA screen comes standard. Frequent travelers who demand high performance—and can afford to pay for it—should consider the new 760 notebooks.

—Allyson Bates ▶

ThinkPad 365X and 365XD, ThinkPad 760E and 760ED

PRO: Affordable; large hard drives and displays

CON: 365 units yield only average performance.

VALUE: Spiffy budget and multimedia notebooks for reasonable prices.

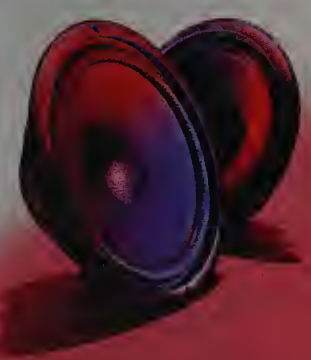
IBM

800/772-2227

http://www.ibm.com

Street prices: $2499 to $5999

What Would You Call A Stereo You Can Fax On, A CD Player You Can Talk On And A High-Speed Modem You Can Watch Movies On, Except Cool?



Sound

PremierSound Audio System for the ultimate sound in a multimedia notebook.

Video

128-bit graphics and superfast MPEG full-screen and full-motion video on a large 11.3" display.

Internet Access

Integrated 33.6Kbps data modem provides the fastest Internet access available over standard phone lines.*

Introducing The Compaq Presario 1000 Series.

What do you look for in a multimedia notebook? A powerful 133MHz Pentium® processor? Absolutely. High capacity hard drives? Sure. But really, when you boil it all down, don't you just want it to be able to work and play as hard as you do?

Introducing the Compaq Presario 1000 Series. It's pretty much everything you could ever want in one neat little multimedia package. High-speed CD-ROM. Fast modem.* A PremierSound Audio System with Easy Access Buttons that make it work just like your stereo. And a full duplex speakerphone.

We call it the Compaq Presario 1000 Series. You can just call it cool. For more information, visit us at www.compaq.com or call 1-800-345-1518.

intel inside pentium® PROCESSOR

COMPAQ

Has It Changed Your Life Yet?

© 1996 Compaq Computer Corporation. All rights reserved. Compaq registered U.S. Patent and Trademark Office. Presario is a trademark of Compaq Computer Corporation. The Intel Inside Logo and Pentium are registered trademarks and Pentium Processor Inside is a trademark of Intel Corporation. Other products mentioned may be trademarks or registered trademarks of their respective companies. *33.6Kbps modem not available on Presario Model 1010.

Circle 47 on reader service card

Adobe Persuasion 4.0: A Favorite Falls Behind

PRESENTATION

ADOBE'S PERSUASION is a venerable product that hasn't had a major upgrade in a long time. Now that it has arrived, how does **Persuasion 4.0** stack up against Microsoft PowerPoint, Lotus Freelance Graphics, and Astound's Astound? My testing of a prerelease version yielded mixed results. Clearly, the first two products are better for beginners.

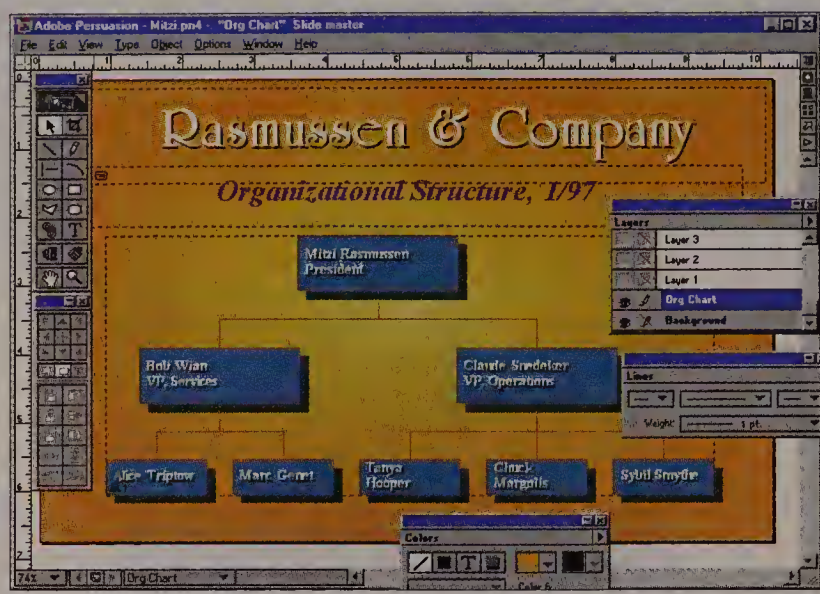
The Persuasion interface is now more like Adobe Photoshop's, with similar menus and floating tool palettes. It comes on a CD-ROM with nearly identical versions for Windows (3.1 and 95) and Macintosh that create compatible cross-platform files.

Persuasion 4.0 provides the basic presentation tools you'd expect, including nice charting and table features, plus adequate options for adding multimedia and interactivity. But it lacks wizard-style automated help—a crucial feature for beginners.

At the upper end of the market, Persuasion doesn't rival the sheer power of Astound. Persuasion's drawing tools are rudimentary, and its supply of transition and animation effects is stingy.

Persuasion lets you post presentations on the World Wide Web, but it turns them into Adobe Acrobat PDF files. It would be nice if Persuasion could format in HTML also.

—Harry McCracken



MORE SHOW THAN TELL: Adobe's Persuasion 4.0 has basic presentation tools, but little automated assistance for beginners.

Persuasion 4.0

PRO: Includes PC and Mac versions; creates Web shows.

CON: Rudimentary drawing tools, little assistance for beginners.

VALUE: Most users will prefer PowerPoint or Freelance.

Adobe

800/685-3505

http://www.adobe.com/

List price: $395, upgrade from earlier versions $129

READER SERVICE NO. 757

QUICK TAKES

HiJaak's Graphics Gem

Graphics file formats proliferate like weeds. Most people who work with graphics professionally encounter new file types often and need to format work in multiple file types. HiJaak Pro 4.0 for Windows 95 comes to the rescue. This 32-bit utility provides conversion filters for more than 85 graphics formats, including some new 3-D formats. The program also lets you catalog your images for searching and browsing. As before, HiJaak includes a screen capture utility for taking snapshots of software on your PC screen. HiJaak Pro 4.0 sells for $279. Quarterdeck Corporation, 310/309-3700.

READER SERVICE NO. 756

Procomm Plus Beats the Competition

COMMUNICATIONS

WINDOWS 95 comes with respectable basic communications tools, but some people demand more. Quarterdeck's 32-bit **Procomm Plus for Windows 95,** the latest comprehensive communications package, offers a more understandable and integrated interface than its closest competitor, Symantec ComSuite 95. ComSuite 95's Winfax remains the feature king of faxing. But if you want to run just one communications package, Procomm Plus is it.

Beyond the Windows 95 look and feel, Procomm Plus offers new remote-control functionality, Caller ID logging, and TAPI compliance. (Applications with TAPI compliance can share a modem without contention. TAPI will also support future devices like USB Modems when Windows 95 supports them.)

The remote-control features work fine for typical business applications. The client software would sometimes crash when running PC WorldBench tests remotely, but these tests are unusually demanding.

Quarterdeck didn't ignore the basics. Procomm Plus for Windows 95 also provides robust fax tools with annotation and optical character recognition, 37 terminal emulations, and BBS and QWK mail capability. With the included scripting language, you can automate communications or online tasks. For instance, your office PC can pull stock prices from the World Wide Web and fax you a daily customized report at home in time for your morning coffee. A bundled copy of Microsoft's Internet Explorer 3.0 is seamlessly incorporated.

—Kevin Mitchell ▶

Procomm Plus for Windows 95

PRO: Well-integrated interface, remote-control features, support for automated communication tasks.

CON: Remote-control features may not work with industrial-strength software.

VALUE: Solid communications tool.

Quarterdeck

310/309-3700; 800/683-6696

http://www.quarterdeck.com

List price: $179

READER SERVICE NO. 758

As of today, maps are re-defined. With new Street Atlas USA® 4.0 CD-ROM, you can easily find

individual addresses and ZIP Code boundaries, add notes and lines, and measure distances and areas on incredibly complete, detailed maps. With an Internet link, Street Atlas USA 4.0 also displays current information about weather, events, and road construction right on your map. To find your current location anywhere you go, just add your

own laptop and Tripmate.™ Using Global Positioning System (GPS) satellite technology, Tripmate will track your every turn on detailed maps. And to explore every twist and turn of America's rugged terrain in 3-D, discover new 3-D Explorer USA.™ So now you can do more than print beautiful maps, perform desktop marketing, and receive clear directions. You can turn getting "lost" into a lost art.

©1996 Delorme

DELORME®

1-800-452-5931 / www.delorme.com
Lat. 43°50.8325'N / Long. 70°06.7525'W

[DICTIONARY OF THE FUTURE, PAGE 531]

lost (lôst) ***adj.*** [archaic] **1.** unable to locate one's position, as in, "Help. I am lost." **2.** having no sense of direction at all **n.b.** became obsolete in 1996 with the introduction of Street Atlas USA 4.0 and Tripmate.

Circle 37 on reader service card

Because bad power take
make sure new Back-UP

Guaranteed Protection against all power problems, on all power paths, for your PC and peripherals.

Back-UPS Office's compact design installs easily on desktop, floor, or mounts to wall. Its ninety-degree plug fits flush against the wall.

PC World 20 Best Upgrades

APC products have won more awards for reliability than all other UPS vendors combined.

Integrates the Security of a Surge Suppressor with the Power of a UPS
Back-UPS Office provides enough outlets to protect your entire system. Six outlets guard your hardware with full time surge protection. Three of the six outlets provide instantaneous battery backup to keep your system from crashing in the event of a brownout or blackout.

Battery Replacement Warning Prevents Downtime
An LED signals when the Back-UPS Office's internal self-test finds the battery near the end of its life. You have 6-8 weeks replacement warning. Batteries typically last 3-6 years, and are user-replaceable.

Site-Wiring Fault Indicator
Without a proper ground, most surge protection is useless. Back-UPS Office alerts you to wiring problems such as missing ground and reversed polarity, two common wiring mistakes which otherwise would require an electrician's visit to diagnose.

Copyright 1996, APC. Trademarks are the property of their owners. ABO001

multiple paths to your PC, Office™ gets there first

Bringing up the issue is awkward, but inevitable: You have a better chance of winning the lottery than of escaping power problems. Sooner or later, every computer user learns about surges, brownouts, spikes and blackouts. Unfortunately, most learn the hard way. Power problems are the single largest cause of computer data loss and hardware damage. If a power sag makes your modem drop the line while you're downloading a file from the Internet, or causes your keyboard to lock before you've saved work, you lose time, money and end up spending another late night at the office to meet your deadlines.

Only Back-UPS Office provides single device Multipath™ protection for all your equipment

The Multipath™ Power Protection Advantage	Traditional Surge Protector	Traditional UPS	Back-UPS Office
Protected Paths			
AC	•	•	•
Data			•
Phone			•
Total Outlets	7	2	6
Number of Block Outlets			2
Protection from			
Surges	•	•	•
Spikes	•	•	•
Blackouts		•	•
Brownouts		•	•
Typical Runtime in Minutes			
with Pentium 100 w/15" monitor		10	10
Battery backup for			
PC		•	•
Monitor		•	•
Storage Devices/Zip Drives		•	•
Full-time surge protection for			
Fax/Modem	•		•
Laser Printer	•		•
Speakers	•		•
Dataline protection for			
Internet or Network			•

Traditionally protecting all your equipment meant buying both a surge suppressor and a UPS. Even then only your AC line was protected. New Back-UPS Office protects all the paths to all your equipment.

Multiple peripherals and data lines to and from your system are vital, but dangerous. Without them, you can't do your job. However, plugging a phone line into your computer doubles your vulnerability to power problems; add any peripheral, and it triples. Even if your computer's AC power-line is shielded, when a surge hits an unprotected peripheral, it can blaze down serial and data lines, and toast your expensive PC.

Only Back-UPS Office provides true common ground protection

Figure 1

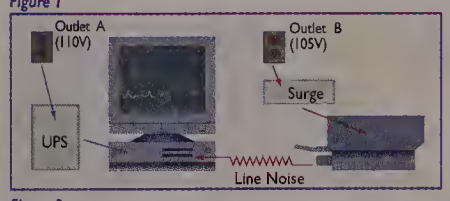


Figure 2

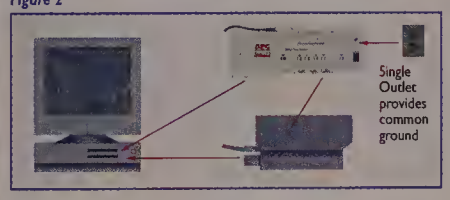


Figure 1: voltage differentials between multiple outlets create line noise and data glitches.
Figure 2: Back-UPS Office's common ground design eliminates the danger of voltage differentials.

Until now, protection for your entire system required several devices. But multi-device protection can leave you vulnerable to line noise and unwanted data glitches created by voltage differentials between outlets.

Back-UPS Office provides reliable, true common ground Multipath™ protection for your entire system. Instantaneous battery backup ensures uninterrupted operation of your CPU, monitor and external storage devices. Full-time surge suppression spreads a safety net around any remaining integrated peripherals, like modems, printers, speakers, and phone systems. Back-UPS Office's convenient BlockSafe™ outlet spacing handles all size plugs.

Back-UPS Office protection means true Multipath™ protection, clean, safe power to every peripheral, and instantaneous battery backup to keep your cutting edge system and O/S from crashing. It means protection for less by integrating the security of a surge suppressor with the power of a UPS, guaranteed up to $25,000.

Protect yourself before you kick yourself. Get your new Back-UPS Office today (list price: $179.99), or call APC for a FREE 60-page catalog!

Ask for APC award-winning power protection wherever top-quality computer products are sold.

Convenient BlockSafe™ Outlet Spacing
Back-UPS Office's outlets are spaced to accommodate all size plugs, including large transformer blocks. You don't have to sacrifice the use of any of your outlets if you use black plugs.

Internet Ready Fax/Modem Protection
Back-UPS Office's built-in phone line/10 Base-T network cable surge protection prevents data line surges from damaging internal and external modems, motherboards, input/output cords, and other system components.

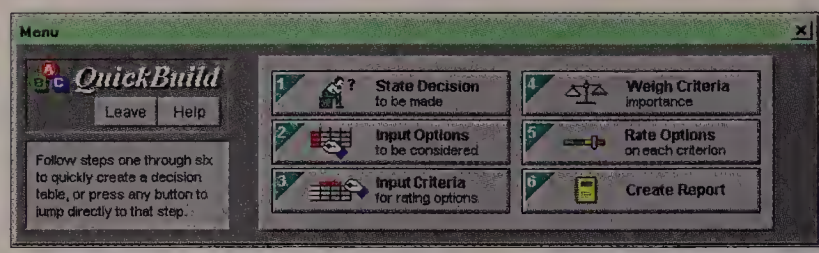
AMERICAN POWER CONVERSION
Dept. P3
800-800-4APC
401-788-2797 fax / 800-347-FAXX Powerfax
http://www.apcc.com
132 Fairgrounds Rd., W. Kingston RI 02892 USA

Circle 45 on reader service card

Better Decisions: DecideRight Versus SureFire

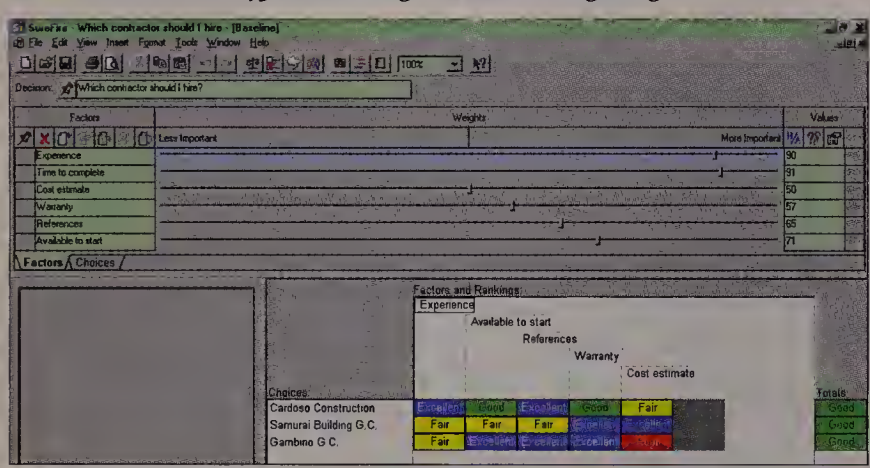
DECISION

MOST DECISION-support programs have a significant problem: The learning curve is too steep for people who need to make decisions before the next Ice Age arrives. But two new packages offer help to managers: Avantos's **DecideRight 1.2 for Windows 95** is simpler in its latest version. A newcomer, Beacon Rock's SureFire Decisions for Windows 95, is more affordable and powerful.



AVANTOS DECIDERIGHT 1.2 has easy-to-use features like QuickBuild, but SureFire works better for group decisions.

Avantos's $149 DecideRight 1.2 for Windows 95 provides a quick way to analyze decisions. You define your decision with DecideRight's QuickBuild feature, then list your options and the criteria for weighing them. You can also quickly create new scenarios for your decision framework. Press a button and you've got a report. On the negative side, DecideRight is a bit thin on group tools, though you can save summaries of documents in HTML format.



A SURE THING: SureFire Decisions works best for group decision-making.

But Beacon Rock's $79 **SureFire Decisions for Windows 95** is a better choice overall. Like DecideRight, it includes wizards and slider controls. It outdoes DecideRight by letting you rate intuitive as well as quantitative factors in your decision models. Better still, SureFire has a host of group tools. For example, you can take input from people and weigh and merge the results into a consensus. SureFire exports its reports, graphs, and tables in HTML format for an intranet or the Web.

—John Mello

DecideRight 1.2 for Windows 95

PRO: Makes it simple to build a decision from scratch.

CON: Better for individuals than for groups.

VALUE: Easy to use, but incomplete.

Avantos
800/282-6867
http://www.avantos.com
Street price: $149, upgrade $15.95

READER SERVICE NO. 759

SureFire Decisions for Windows 95

PRO: Merges a group's ratings to create consensus.

CON: Cluttered screen layout.

VALUE: More power, better value: the winner.

Beacon Rock
972/562-5878
http://www. beaconrock.com
Street price: $79

READER SERVICE NO. 760

Microsoft's New MBA-ware Does the Job

MANAGEMENT

USED PROPERLY, Microsoft's new **Team Manager 97** can help managers stay ahead of nonstop meetings, reports, and employee reviews—the basic chores of doing business. Team Manager works across a company's existing network and VIM- or MAPI-compliant e-mail system to share and update data, and it integrates directly with Microsoft's Schedule+ 7.0 and Outlook 97 programs.

Team Manager breaks into four major sections: People, Tasks, Notebook, and Vital Signs. Information in the People section may include such details as pay scales, contact data, and career goals; data in Tasks encompasses project descriptions, deadlines, and status reports. Managers can zero in on trouble spots using the Vital Signs section.

Team Manager also provides useful cross sections that let managers visualize relationships among employees and projects. The Task Organizer view, for example, makes it easy to see who is responsible for which projects and see their status. The Workload Planner lets managers gauge employee work levels.

Team members get a truncated view of the complete data, enabling them to track their own status and to update appropriate records.

With its familiar Microsoft Office interface, Team Manager 97 puts a friendly face on a challenging problem. But you'll only get out of Team Manager what you put in: You must be disciplined about updating the information. On top of that, the numerous overlapping relationships can get confusing, though the generous help system and wizards do ease the learning curve.

—Michael Desmond ▶

Microsoft Team Manager 97

PRO: Simplifies daily tasks; integrates with e-mail and networks.

CON: You must invest time to keep information current.

VALUE: A useful weapon to tame the management beast.

Microsoft
800/426-9400
http://www.microsoft.com
List price: $109, five licenses $469

READER SERVICE NO. 761

Shockwave™ and Capitol Records Produce Another Smash Hit.

a truly compelling interface that takes advantage of Shockwave's streaming audio from SoundEdit™ 16 *plus* DECK II™. Macromedia xRes™ helps us edit high-resolution images, and Extreme 3D™ takes us to another level in 3D. We'll continue to use Director and Shockwave in the future, and soon we'll have entire CDs right on our site."

because of its superior sound quality. With it, we breathe new life into both old and new hits on our virtual jukebox. By using Director, we get the flexibility to create

Capitol Records' Robin Bechtel on the Director® Multimedia Studio™ with Shockwave™: "We chose Shockwave

Now with streaming audio, Shockwave™ is producing hit after hit on the World Wide Web. Take this virtual jukebox at Capitol Records, created with the Director Multimedia Studio™ entirely for Shockwave. "We use Macromedia because they're dedicated to pushing technology to the limit," said Robin Bechtel, senior director of new media at Capitol. "With Shockwave, we're at the forefront of a new frontier in multimedia and Web audio. As a medium to get music to the masses, it's the best thing going." But don't just take her word for it. First, see and hear for yourself by getting Shockwave free at our Web site, where you'll also find a link to Capitol Records. Then give us a call today. And you'll become a multimedia sensation overnight.

Call 1.800.279.9823
for a FREE Showcase™ CD* and the name of a reseller near you.

MACROMEDIA®
Tools to Power Your Ideas.™

Director Multimedia Studio includes Director 5, SoundEdit™ 16 *plus* DECK II™ (or Sound Forge XP for Windows), Macromedia xRes™, and Extreme 3D™. Estimated street price is $999 for Windows or Mac.

*Offer valid in the U.S. and Canada only. Outside the U.S., Canada, and Europe, call us at 1-415-252-2000 or FAX us at 1-415-626-0554. In Europe, call +44 (0)1344 458600. Macromedia, the Macromedia Logo, and Director are registered trademarks and Director Multimedia Studio, SoundEdit, DECK II, Macromedia xRes, Extreme 3D, Shockwave, Showcase, and Tools To Power Your Ideas are trademarks of Macromedia, Inc. All other brand or product names are the property of their respective owners. © 1996 Macromedia, Inc. All rights reserved.

Circle 139 on reader service card

Type, Click, and Write With a Single Peripheral

INPUT

PC INPUT DEVICES are like breakfast cereal: No single choice pleases everyone. Some people prefer stiff keyboards, some like mushy ones; some people like a standard mouse, others favor trackballs. Cirque has integrated its GlidePoint touchpad with a regular desktop keyboard. If you like the combination, the **Cirque Input Center** is a great value. And the company has sweetened the recipe by adding new pen capabilities.

The Input Center includes a handy area for resting your palm, but you need lots of space: When connected to my PC on a narrow desk, the Input Center hung out over the edge. The GlidePoint touchpad, which sits below the cursor keys, is definitely an acquired taste. But it grew on me. Especially handy is the ability to tap the GlidePoint surface instead of using separate mouse buttons. (They're still available.)

You may also use the included stylus pen on the GlidePoint surface. With a light touch, you can use the stylus to move the cursor. Pressing a bit harder accesses a "laying ink" feature that enables you to add your signature to a fax or do some sketching. This feature wasn't included in the prerelease version I tested. My left-handed wife noticed one problem: The placement of the touchpad makes using the stylus almost impossible for southpaws.

As with any keyboard, try before you buy.

—*Stan Miastkowski*

COMFY KEYBOARD: Cirque's affordable Input Center integrates a keyboard and touchpad with pen input.

Cirque Input Center

PRO: Well-integrated multipurpose peripheral.

CON: Not for lefties.

VALUE: Reasonable price if you like the parts.

Cirque Corp.

800/454-3375

http://www.glidepoint.com

Street price: $99

READER SERVICE NO. 763

ViewSonic P815 Advances Monitor Technology

MONITOR

FOR GRAPHICS professionals ready to step up from a 14- or 15-inch monitor, **ViewSonic's P815** represents the current state of the art. It's a big monitor in size (21 inches), weight (61 pounds), and price ($1995). In fact, the P815 tops even ViewSonic's high-end Professional Series. You can pay less for a 21-inch monitor, but the ViewSonic doesn't skimp on anything, and it pushes the envelope of current technology.

The P815 has a maximum resolution of 1800 by 1440, and its ultrahigh bandwidth and broad horizontal scan range deliver that resolution at an easy-on-the-eyes refresh rate of 76 Hz. If you need a resolution of "only" 1600 by 1200, refresh is a rock-steady 90 Hz. Not many graphics cards support 1800 by 1440, but that's changing. I tested a shipping version of the P815 with the $695 Artist Graphics 2000I card (at 256 colors); but the newest 4MB versions of the Matrox Millennium and the Number Nine 9FX Motion 771 also support that very high resolution.

The P815 shows how far technology has come since I bought a 21-inch monitor last year. Some big screens show inconsistencies, but the P815 is bright, sharp, and uniform from edge to edge of its 20-inch viewable area. The P815 has a .25mm dot pitch and employs a special high-contrast, low-transmission glass that makes the colors amazingly brilliant. And the tube comes with an effective antiglare coating.

Plainly, the P815 isn't for everyone. But if you do serious graphics work or spend your day with your PC, it can be an eye-saving investment.

This monitor won't be obsolete anytime soon.

—*Stan Miastkowski* ▶

ViewSonic P815

PRO: Razor-sharp 21-inch monitor, supports top resolutions.

CON: Heavy and comparatively expensive.

VALUE: Worth every penny if you live and breathe graphics.

ViewSonic Corp.

800/888-8583

http://www.viewsonic.com

Street price: $1995

READER SERVICE NO. 764

QUICK TAKES

Grade-A Phone Book

Pro CD's 1997 version of Select Phone Deluxe has been upgraded and updated to make mailing lists, telemarketing, and market research easier to manage. In addition to supplying the contents of five regional phone books, the $149 Select Phone Deluxe now includes AT&T's Free Phone directory (AT&T 800 numbers), a Business-In-One disc (U.S. corporate listings on one CD-ROM), and a free quarterly update. A full year subscription (which costs $279) buys four quarterly updates. If we had to purchase a single phone CD-ROM package, this would be our choice. Pro CD, Inc., 800/224-4732, 508/750-0000, http://www.procd.com.

READER SERVICE NO. 762

New ATI 3D graphics upgrades put A WHOLE NEW SPIN on the way you view your computer and TV.

Everywhere you look, eyes are popping and heads are spinning over the new ATI 3D PRO TURBO PC2TV™ and the 3D XPRESSION+ PC2TV™ graphics upgrades. The only ones with the *PC2TV* feature that uses your big screen television (in addition to your monitor) for awesome business presentations and in-your-face game playing. You'll get the best possible combination of 3D, 2D and full-screen video, with more features built right onto the board than you get from Matrox, Diamond or anyone else. You also get 16.7 million brilliant colors at 1280x1024 resolution, plus the smoothest TV-quality video playback today. All of which means startling improvements in realism and response from multimedia, games, business apps and Web graphics. And both come with the free ATI Software Superpak with today's hottest 3D games and 3D Web Browser software. See your dealer now or see more about them at www.atitech.ca.

COMPARISON	3D XPRESSION+ PC2TV	3D PRO TURBO PC2TV
Use	Games, Home, Business	Power Users, Engineers, Graphics Professionals
Maximum 3D Resolution	1024x768	1600x1200
Maximum Resolution	1600x1200 @ 60Hz	1600x1200 @ 75Hz
Memory	2MB or 4MB (2MB upgradable to 4MB)	4MB or 8MB (4MB upgradable to 6/8MB)

NOW YOU SEE IT.™

© ATI Technologies Inc., 1996. ATI, 3D PRO TURBO PC2TV, 3D XPRESSION+ PC2TV and NOW YOU SEE IT are trademarks and/or registered trademarks of ATI Technologies Inc. All other company and/or product names are trademarks and/or registered trademarks of their respective manufacturers.

Circle 5 on reader service card

ProZip's Nice Interface Is Not Enough

UTILITY

NO MATTER HOW large your computer's hard disk or how fast your Internet connection, big files can put the squeeze on, demanding more resources. **ProZip,** one of many Windows file-compression programs available, shrinks files to manageable size. Using ProZip to compress and expand files could hardly be simpler. I used it on a Windows 95 PC; it also runs under Windows 3.*x*.

ProZip lets you drag and drop files to move them in and out of an archive (just as you would move them in and out of a folder), or between two archives. You decide the level and speed of compression, assign passwords, and adjust other settings in the Preference window. Despite the simplicity of these controls, I found a few problems: For example, the Cancel and OK buttons in the Preference window did not work in the shipping copy I reviewed.

ProZip elegantly handles self-extracting files. When you double-click the file, ProZip asks for the correct destination folder and lets you browse before picking the right place to expand the file.

But in a couple of ways, this $40 program falls short of its popular competitor, PKZip for Windows 95, which sells for $49. Unlike PKZip, ProZip doesn't support long file names, nor does it provide right-mouse access through Explorer. Overall, there's no compelling reason to choose ProZip over PKZip.

—*Peter Scisco*

NEW COMPRESSION TOOL: ProZip lets you look inside any archive as if it were a folder. But overall, it doesn't beat the competition.

ProZip

PRO: Fast, built-in drag-and-drop file archiving and retrieval.

CON: Limited Windows 95 support; small design problems.

VALUE: Not ahead of the pack.

RT Computer

800/891-1600

http://www.prozip.com

Street price: $40

READER SERVICE NO. 766

QUICK TAKES

The Newest Norton

Norton Utilities 2.0 appears to be a winner, providing a host of improvements and support for the new Microsoft FAT32 file system (included in the latest version of Windows 95, which comes preloaded on new PCs). People with this version of Win 95 shouldn't use older versions of Norton Utilities. One improvement, the System Genie, lets you customize a Windows 95 PC without having to delve into complicated Registry edits. The new LiveUpdate feature periodically checks Symantec's World Wide Web site and BBS for updates or patches, and then it enables you to download and install them. Virus scanning takes place transparently. Street price: $79, upgrade $49. Symantec, 800/441-7234, http://www.symantec.com.

READER SERVICE NO. 765

Improved UnInstaller Clears Out Old Files

UTILITY

MOST WINDOWS 95 PCs have a twilight zone where ghost files from deleted applications lurk. Not all new software has Windows 95's add/remove applet built in, and programs with the applet don't necessarily remove every associated file. But **UnInstaller 4,** MicroHelp's newest version of this Windows 95 utility, solves the problem.

It examines each file for recent usage and identifies any links to and from other files. It ranks files from unessential to critical (for example, it separates important system files from leftover clip art files) and then categorizes them by file type.

You can delete an application and its associated files completely or move them to another PC or drive.

UnInstaller 4 is far from automatic. You must open files to ensure that those it has slated for removal truly are "unessential." The program misdiagnosed some screen saver files on my system as unessential, so be careful what you delete. Fortunately, UnInstaller 4 also automatically compresses and backs up removed files, and it easily restores files that you've deleted erroneously.

In *PC World*'s last roundup of utilities ("Complete Guide to Windows Utilities," June 1996), Uninstaller 3.5 did a poor job of removing files associated with long-deleted applications, but this upgrade does a better job. In addition, MicroHelp claims that this new version is up to 20 percent more effective than its predecessor at removing certain types of files.

—*Jeff Sengstack* ▶

Uninstaller 4

PRO: Simple to use, thorough system examination.

CON: No uninstaller program is perfect yet.

VALUE: Solid upgrade of very easy-to-use uninstaller.

MicroHelp

770/516-0899

http://www.microhelp.com

Street price: $40

READER SERVICE NO. 767

With TV ON YOUR PC,

you'll never miss critical news, sports or soap operas again.

Even if we have to

WATCH THEM FOR YOU.

Can your TV[1] do this? Doubtful. New ATI-TV™ monitors closed captioning, watching for key words you define - like maybe the name of your company or your favorite team. When the word is mentioned, ATI-TV pops on screen so you can watch. Or it sits unattended in the background, recording a transcript for your review later on. You can zoom in and around the screen, capture frames and clips from your camcorder or VCR for use in other apps. You can even have ATI-TV turn on and tune in to your favorite shows automatically. There's never been a more powerful reason to get TV on your PC than ATI-TV. It's an economical add-on to ATI 3D PRO TURBO™ PC2TV or ATI 3D XPRESSION™ PC2TV, the high-performance leaders in graphics upgrades. So you'll get the smoothest full-screen, TV-quality video today. See your dealer, or check out www.atitech.ca. We'll be watching.

NOW YOU SEE IT.™

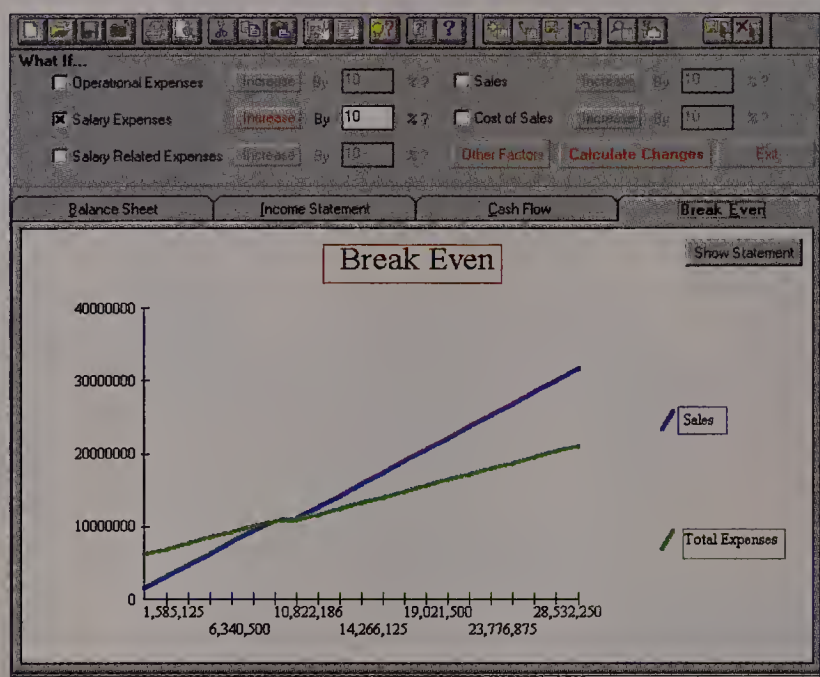
[1] © ATI Technologies Inc., 1996. ATI, ATI-TV, 3D PRO TURBO, 3D XPRESSION and NOW YOU SEE IT are trademarks and/or registered trademarks of ATI Technologies Inc.

Circle 25 on reader service card

Business Maestro Handles Financial and Strategic Planning

BUSINESS

YOU EXPECT SALARY costs for your department to rise 12 percent this year, but sales might be flat. What would that do to your company's profitability? How can you plan accordingly? Put the figures into **Business Maestro,** and find out quickly. I tested a shipping version of Business Maestro—an analysis tool that orchestrates reports, what-if scenarios, and business plans in a single coherent package, at half the cost of some competing products.



BOTTOM-LINE IT FOR ME: Graph a break-even analysis with Business Maestro, using what-if scenarios and your company's financial data.

Building from your company's organizational chart and chart of accounts, you can customize the reporting and manipulation of financial data to isolate pressing issues. An integrated strategic planning guide helps you create a workable business plan with real-world figures. Templates and examples let you develop a strategy quickly; you can use the templates with popular word processors or with the built-in plan writer. Maestro imports from and exports to Excel and QIF formats.

An uncluttered menu structure and dialog boxes smooth the learning curve. The toolbar icons aren't always obvious, but that's a small quibble given the program's overall performance.

Business Maestro probably isn't the right program for a small business with few employees, a limited product line, and simple P&L statements. But department managers in bigger companies will find this application improves the financial modeling process and quickly pays for itself.

—Peter Scisco

Business Maestro

PRO: Easy to use financial modeling and strategic planning tools.

CON: Not for small businesses.

VALUE: At half the price of some competitors, it merits a long look.

Planet Corp.

800/366-5111

http://www.planet-corp.com

List price: $995

READER SERVICE NO. 768

Suite for Small Business Misses the Mark

ACCOUNTING

DESPITE ITS NAME, **Big Business 2.0 for Windows** is an accounting and management package designed for small businesses. It's the first Windows 95/NT incarnation of a Macintosh program. Big Business has a raft of unique features. Also, it's priced rather reasonably. But ultimately, this program is overwhelmed by some major problems.

This $199 program packs the usual accounting tools, plus integrated personal information management, inventory management, and sales automation features. These capabilities help small business managers keep track of employees and projects. Big Business 2.0 also helps create Web-site catalogs and price lists. About the only thing missing is a payroll program—an unaccountable omission.

As with all programs in this genre, you have to put in considerable setup time to get the most from Big Business. But there are more serious problems. Big Business accepts only plain text input: It can't handle data input from other accounting programs unless they export to text format. Big Business exports its own data in text format.

The program's heavily icon-based user interface contains a quirky mixture of standard and nonstandard Windows buttons and menus. Most data screens are shown in boring monochrome.

Worse, screens don't scale to the resolution of your display. On my 1280 by 1024 display, Big Business's screens huddled sullenly in the corner, virtually unreadable.

Big Business 2.0 for Windows is a feature-packed set of business tools, but it's hard to get beyond the truly awful user interface and the import limitations.

The vendor is already planning a revision of the program that improves the interface and addresses some of our concerns.

—Stan Miastkowski ▶

Big Business 2.0 for Windows

PRO: Unique and useful PIM-centric approach.

CON: User interface needs major work.

VALUE: Don't buy unless you can live with its awful interface.

Big Software

800/711-7458

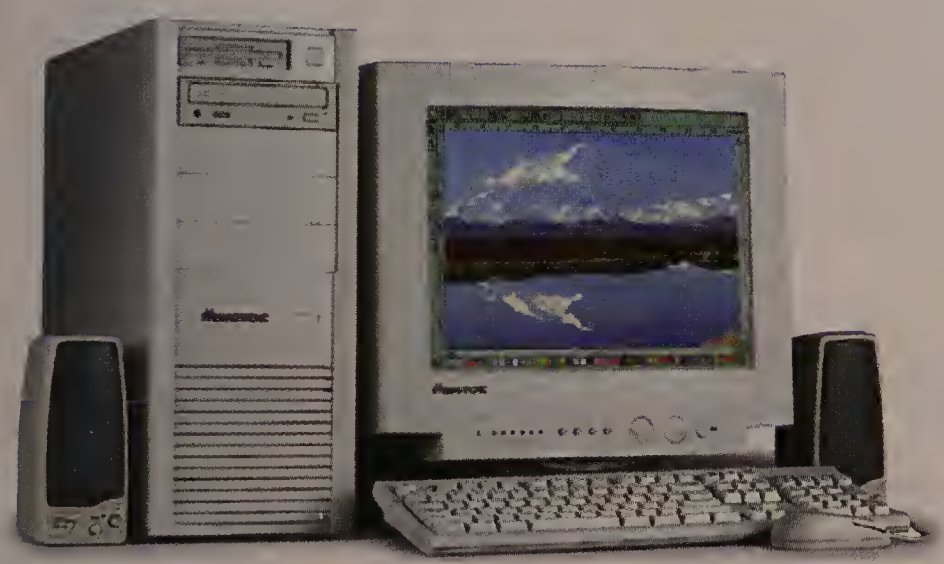
http://www.bigsoftware.com

Street price: $199

READER SERVICE NO. 769

Explore the Possibilities...

When ready to explore the possibilities of computer technology, think Magitronic. We provide all the computer hardware and peripherals needed for home and business computing at affordable prices. Call your Authorized Magitronic Dealer today, and Explore the Possibilities.



166MHz Pentium®
Processor-Based Multimedia System
256KB Pipeline Burst SRAM, Intel 430VX Chipset, Flash PnP Award BIOS, 16MB EDO RAM, a 2.1GB HDD, a 3.5" 1.44MB FDD, a 64-bit 2MB, PCI Video Accel. with Software MPEG Video Playback, an 8X CD-ROM Drive, a 16-bit Wavetable Surround Sound Card, Stereo Speakers, and CD-titles. Also Includes Lotus SmartSuite and Windows '95. G-P166M+

Ask about our full line of Monitors! The 15" Flat Screen Color Monitor offers 13.9" viewable, .28 Pitch, 1280 x 1024, Plug and Play, Digital and MPRII. C-SV1500PS

intel inside pentium® PROCESSOR

MAGITRONIC®
THE POWER OF VALUE

Call Today! Toll-Free! 1-888-MAGITRONIC
1-888-624-4876

Reseller prices may vary. Magitronic and the Power of Value are trademarks of Magitronic Technology, Inc. All logos are the property of their respective companies. Intel, the Intel Logo, Intel Inside, the Intel Inside Logo, Pentium, the Pentium Logo are registered trademarks of Intel Corporation. Price subject to change without notice. Not responsible for typographical errors. All Magitronic systems are covered by free 24 hour tech-support and a competitive warranty.

Circle 140 on reader service card

ALL THE MUSCLE. NONE OF THE FAT.

INTRODUCING THE POWERFUL NEW PORTÉGÉ®.

Far smaller than a standard notebook, the new Portégé offers exceptional performance and power. The Portégé features a blazing 133MHz Pentium® processor with PCI architecture, a gigantic 1.3 billion byte hard drive and up to 80MB of fast EDO memory. You'll also find full-motion video and stereo sound to give your multimedia presentations a lot more punch. It's the best yet from Toshiba's award-winning Portégé line. Pound for pound, no other notebook can touch it. For more information, visit the Toshiba website at http://computers.toshiba.com, or for a dealer near you, call 1-800-457-7777.

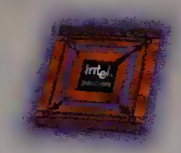
Designed for Microsoft® Windows®95

intel inside pentium® PROCESSOR

PORTÉGÉ®

650CT

- 11.3" color active-matrix TFT display, 800 x 600 resolution
- 133MHz (2.9v) Pentium® processor
- PCI system-bus architecture
- 16MB of EDO DRAM expandable to 80MB, 256KB L2 cache
- 1.3 billion byte (=1.26GB) hard drive
- Built-in 28.8Kbps voice/fax modem
- HiQVideo™ PCI graphics controller
- 16-bit Sound Blaster® Pro compatible audio system with speaker and microphone
- Lithium Ion battery
- Supports two Type II or one Type III 16-bit PC Cards, ZV Cards or 32-bit CardBus Cards
- 4.8 lbs.
- Optional Desk Station V Plus: PCI architecture, SelectBay™ PCI/ISA and PC Card slots
- Optional NoteDock™ II Enhanced Port Replicator
- Windows® 95 or Windows® for Workgroups included
- 3-year limited warranty
- Toll-free technical support – 7 days a week, 24 hours a day



PENTIUM® PROCESSOR
How's this for computing brawn? 133MHz processing power and lightning-quick PCI architecture.

ZOOMED ZV VIDEO

FULL-MOTION VIDEO
With Toshiba's Zoomed Video technology and a ZV PC Card, you get full-screen, full-motion video and MPEG support without sacrificing system performance.

BUILT-IN 28.8Kbps MODEM
With a built-in voice/fax modem you can stay in touch with the world quickly and efficiently.

11.3" dia.

800 x 600 RESOLUTION
Considering its small size, the Portégé has a large 11.3" screen with brilliant active-matrix color.

BIGGER KEYBOARD
At your fingertips is the newly designed Portégé keyboard. Keys are now larger and more ergonomically shaped to fit your fingertips.

POWERFUL DOCKING
For the ultimate desktop computer, combine the powerful Portégé with the optional Desk Station V Plus. You'll get stereo speakers, hot docking and SelectBay™ with optional 6X CD-ROM.

In Touch with Tomorrow
TOSHIBA

The World's Best Selling Portable Computers.

©1996 Toshiba America Information Systems, Inc. All specifications and availability are subject to change. All products indicated by trademark symbols are trademarked and/or registered by their respective companies. Intel Inside and Pentium Processor Logos are trademarks of Intel Corporation.

Circle 228 on reader service card

Heavenly 3-D Graphics: Bryce 2 and Detailer

GRAPHICS

GOD CREATED the world in six days. Mere mortals can't compete with that pace, but thanks to MetaTools' **Bryce 2 for Windows 95/NT**, they can bang out a good-looking mountain range or two in minutes.

The $179 Bryce, named after a Utah canyon, is an addictive 3-D graphics package that lets you construct breathtaking scenes full of mountains, bodies of water, clouds, and other natural elements. Your creations can approach photorealism or be utterly fantastic; and you can easily customize them, view them from any perspective or distance, and save them as bit-mapped images for later use in other applications.

STUNNING SCENERY: Bryce 2's inventive tools let you create picture-perfect landscapes for use in other applications.

Like other MetaTools products, Bryce 2 has a stylish user interface that bears no resemblance to a typical Windows program. Its controls are oversize, three-dimensional gadgets. For the most part, Bryce 2's look is fun and functional, though it's occasionally hard to find the gadget you need.

Like Bryce 2, Fractal Design's **Detailer 1.0** is a powerful, easy-to-use 3-D graphics package. It takes the natural-media art instruments from Fractal's Painter image-editing program—paintbrushes, crayons, and the like—and lets you use them to decorate 3-D objects. You can apply these art materials to a flat, rectangular painting surface or to the 3-D object itself. You can't model 3-D shapes, but the program comes with predefined shapes and can import them.

Detailer 1.0 is an innovative tool for 3-D artists; but at $449, it's pricey for casual users.

—Harry McCracken

Bryce 2 for Windows 95/NT

PRO: Powerful 3-D landscape designer.

CON: Interface sometimes tricky.

VALUE: Fun way to design your own worlds.

MetaTools

805/566-6200

http://www.metatools.com

Street price: $179

READER SERVICE NO. 770

Detailer 1.0

PRO: Brings natural-media art to 3-D.

CON: Expensive.

VALUE: Unique 3-D painting tool for serious artists.

Fractal Design

800/846-0111

http://www.fractal.com

List price: $449

READER SERVICE NO. 771

CorelDraw 7 Offers Better Speed, New Look

GRAPHICS

CORELDRAW HAS long been the 800-pound gorilla of graphics software suites, and in the past, each new version added more programs to the bundle. But **CorelDraw 7** takes a different tack: It concentrates on some significant and very welcome improvements to the package's two core applications, CorelDraw and Photo-Paint.

For the first time in several years, CorelDraw's interface has changed significantly, yielding such innovations as a context-sensitive toolbar that alters according to the drawing tool you're using. The toolbar is a time-saver, although veteran CorelDraw users will need time to adjust.

Based on my experience with the prerelease version, Corel has improved the speeds of file loading, screen redrawing, and other time-consuming tasks.

The many improvements include more accurate print preview and the ability to create semitransparent objects, such as stained-glass windows. If you have a graphics tablet with a pressure-sensitive stylus, you can draw with a calligraphic line.

Corel also has added Internet-oriented features. Now you can save files in the company's unique Barista format: It uses Java to convert CorelDraw images precisely for use in Web pages.

Photo-Paint now has the same context-sensitive toolbar and runs noticeably faster. My favorite new features are Image Sprayer, which splatters customizable images onto a picture as you move the mouse, and a filter that automatically improves color and contrast in photos.

Several of CorelDraw 6's secondary modules have departed, including the presentation and animation modules; but this isn't a tragedy, since those modules weren't top-notch. The 3-D illustration and multimedia file manager modules remain. As usual, Corel provides an ocean of clip art, stock photos, and fonts.

—Harry McCracken ▶

CorelDraw 7

PRO: Faster; streamlined interface; lots of new features.

CON: Some old apps are gone.

VALUE: Solid upgrade focuses on refining core programs.

Corel

800/772-6735

http://www.corel.com

List price: $695, upgrade $249

READER SERVICE NO. 772

"I love PageScan Color Pro for its high quality, but its versatility always amazes me."

-Erik Flink
Medical Journalist by day, Web-Master by night

Smart, compact design scans books and other bound materials without tearing out pages. It works equally well as a multiple page sheet-fed scanner.

Full TWAIN compliance lets you scan directly into hundreds of applications.

Helpful customer support is readily available.

24-bit color and 400dpi give you more life-like images than the competition.

Boardless design makes installation a breeze. There is no need to open up your computer.

Adobe® PhotoDeluxe,™ Xerox® Textbridge® and DocuMagix™ PaperMaster™ software provide the most accurate imaging quality and allow you to import text with no re-typing.

Single mouse clicks choose tasks effortlessly.

PageScan™ Color Pro, from Logitech®: the leader in peripheral and imaging technology. For FaxBack information call: 1-800-245-0000, Document 8310. Or give us a call at 1-800-936-0083 and visit us on the Web at www.logitech.com

WINDOWS® 95 COMPATIBLE

™/® - trademarks are the property of their respective owners.

LOGITECH

Products people love™

High-Tech Compass Meets Digital Map

MAPPING

DO YOU COUNT yourself among the perpetually lost? **Compass 3800,** a $289 bundle from Chicago Map, could help: It includes the Garmin GPS 38 (a handheld global positioning system receiver) and Precision Mapping 2.0 for Windows (digital street map software).

I like both the GPS 38 and Precision Mapping, which I tested in shipping form. The mapping software let me quickly search for a location by zip code, area code, or street address, and it tracked down a number of personal and business addresses that I needed. Navigating through the maps was fairly easy, but the mechanism could be improved. For example, panning across a map in small steps required repeated clicks of the right mouse button.

The GPS 38, which is about the size of a pocket cellular telephone, proved easy to use outdoors. It worked well when I went sailing or kayaking around San Francisco Bay. However, the model failed at the one task you're most likely to need it for—keeping you on course as you drive a car from point A to point B.

To get any kind of a fix in my Isuzu Trooper, I had to set the GPS 38 up on my dashboard. Unfortunately, the kit does not include a mounting bracket. As I navigated open areas, the unit tracked my direction and speed accurately. But when I drove around hills, through city streets, or under freeways, the Garmin 38 quickly lost its tracking ability. If you drive a convertible in Kansas, the Garmin 38 will most likely work fine. For the rest of us, the better setup is to use the company's Garmin 45 package with an external antenna—but this solution costs more than $500.

You can connect the GPS to a notebook PC, using the included 7-foot serial cable. The GPS sends your location, speed, and direction to the mapping software, which in turn displays your location on an actual map (down to a scale of a few city blocks).

Don't buy the Compass 3800 if you intend to use it mainly in a car. But if you want a map-based navigation system for diverse situations, this may be the least expensive package on the market.

—Tracey Capen

Compass 3800

PRO: Affordable GPS unit.

CON: Doesn't work well in the car, especially in cities.

VALUE: Okay if you planned to buy a handheld GPS anyway.

Chicago Map

630/257-7616

http://www.chicagomap.com

Street price: $289

READER SERVICE NO. 773

PointCast 1.1: More Content for News Junkies

ONLINE

AS YET, no company has copied PointCast's innovative strategy of building an information broadcast service over the Internet and projecting it onto a screen saver. Version 1.1 of the program expands on the simple concept by adding much new content, such as regional news from half a dozen major cities; stories culled from CNN, the *New York Times,* the Knight-Ridder newspaper chain, and Quote.com (stock updates); worldwide weather updates; and more. Well-designed configuration dialog boxes separate these content choices into dozens of channels, which you can easily select, omit, and prioritize.

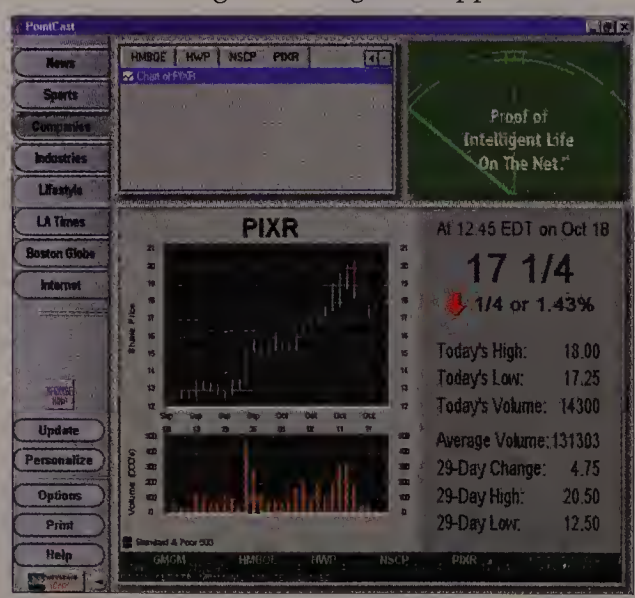
PointCast Network 1.1 has a simple embedded browser, allowing you to treat the network's ads as clickable sites (so fewer clicks stand between you and the information). In fact, it can integrate into Netscape Navigator 3.0 as a plug-in, but not into Microsoft Internet Explorer 3.0.

Though you can download PointCast at no cost, it also appears in retail stores bundled with an Internet starter kit and a month of free support for $20.

I got off on the wrong foot with the new shipping version 1.1 of PointCast's Network, making an installation error that prevented the program from running. The most knowledgeable tech support people in recent experience promptly recommended a successful fix, which resolved the problem.

It's hard to recommend PointCast 1.1 for anyone not connected full-time to a corporate LAN. Downloading updated content is critical if the product is to be of any service at all; but for people in the disconnected world, this task requires frequent connections and valuable processor and modem time. Still, you can't beat the price.

—Richard Overton ▶



POINTCAST 1.1 delivers more content from sources such as Quote.com, and the price is right.

PointCast Network 1.1

PRO: Improved data compression and channel selection.

CON: May not be practical for home users.

VALUE: Innovative, free Web tool.

PointCast

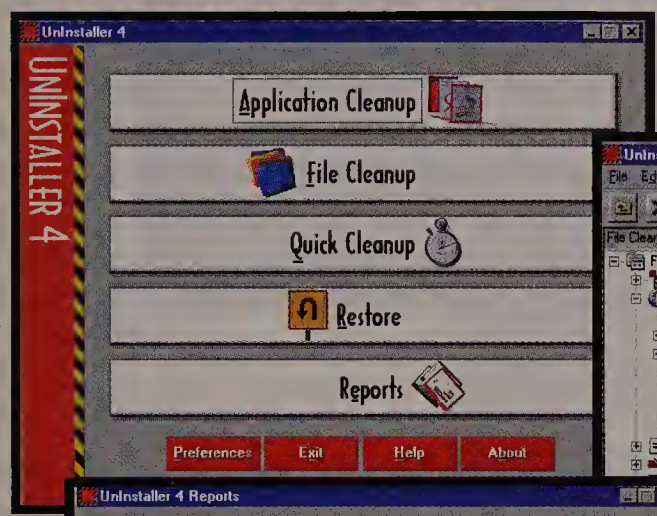
800/545-7677

http://www.pointcast.com

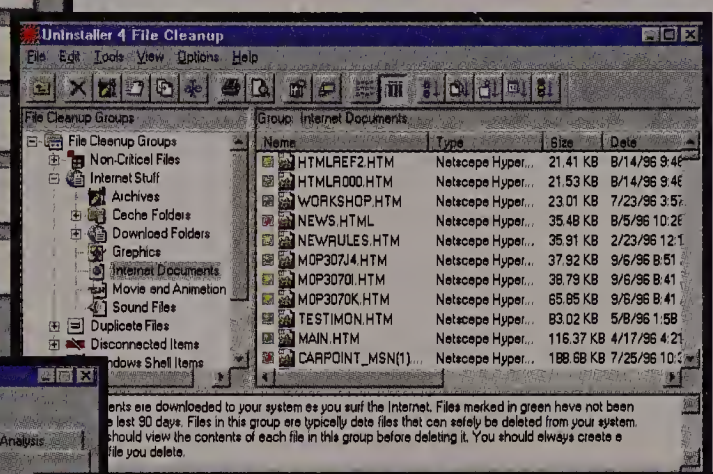
List price: free download, $20 retail starter kit

READER SERVICE NO. 774

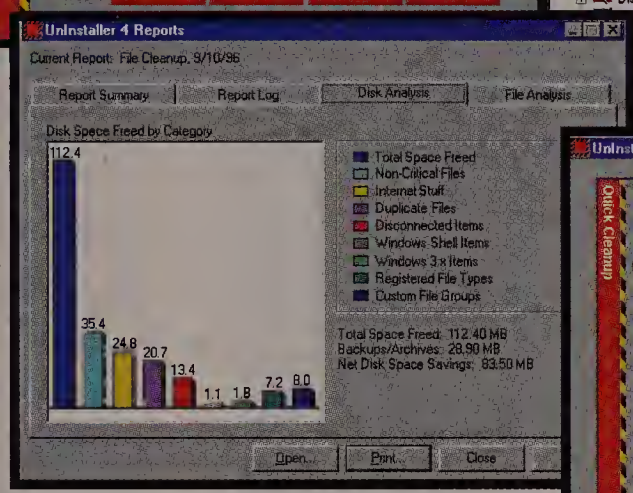
UnInstaller 4 - More *Un* for the Money.



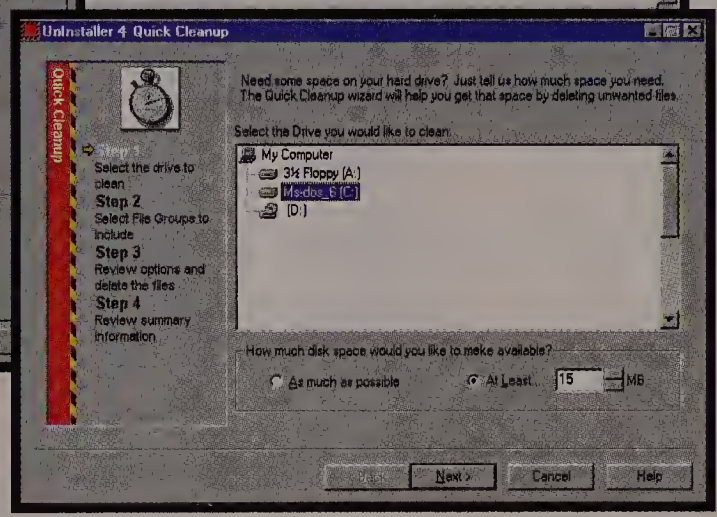
Need to clean up your system? UnInstaller 4's all new cleanup tools remove applications and files safely and easily.



Internet stuff building up on your system? Fonts and clip art you never use? Use File Cleanup for routine cleaning.



Want to see what's happening on your hard disk? New graphical reports give you the details.



Need 10MB fast? New Quick Cleanup frees up any amount of disk space you specify!

Introducing UnInstaller™ 4: more than ever, the *Un* for all.

Now there's a safer, easier way to free up disk space. Designed specifically for Windows® 95 and NT 4.0, UnInstaller 4 is your hard drive's best friend. It removes unneeded files and applications that take up precious disk space.

UnInstaller 4 is safer than any other Windows cleanup utility. More thorough than an application's own de-installer. And faster than a speeding bullet (well, almost)!

Thanks to its exclusive SmartLinks™ technology, UnInstaller 4 understands the relationships between the files and programs on your system. So, unlike other cleanup software, UnInstaller 4 will never remove a critical Windows system file!

Need disk space fast?

Are Internet cache files and downloads accumulating on your hard drive? Want to remove an application you no longer need? UnInstaller 4 is the answer.

Quick Cleanup frees up any amount of disk space you specify by finding and deleting unnecessary files. *File Cleanup* safely removes files and data you no longer need. *Application Cleanup* allows you to delete, move, transport and archive applications safely and quickly. *Graphical Reports* show you how UnInstaller 4 cleaned your hard disk.

Get UnInstaller 4 and see for yourself why the #1 selling Windows cleanup utility is still the *Un*!

Call 1(800)922-3383 to order or visit your local software store today!

©1996 MicroHelp, Inc. All rights reserved. UnInstaller and SmartLinks are trademarks of MicroHelp, Inc. Windows is a registered trademark of Microsoft Corp.

www.microhelp.com

MicroHelp

HEY, EVERYONE CAN USE A LITTLE HELP.

Circle 153 on reader service card

Sound Decisions for Internet Audio

AUDIO

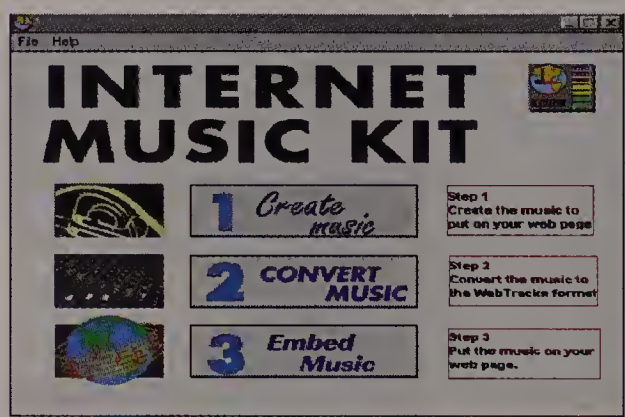
THREE NEW audio-related products can enhance your aural experience on the Internet. But only one of the three offers a big enough enhancement to receive our hearty endorsement.

That's the **Internet Music Kit**—a nifty utility that lets Web sites on a budget add instantly playable music to HTML pages. Until now, that capability required an expensive RealAudio server. With this utility, available from Wildcat Canyon Software's Web site, you can place any MIDI file on your Web page. You can even create one yourself with the Music Kit's simple composition utility. The file can be set up to play a musical greeting when visitors open the page or when they click on an icon.

Still, MIDI files are merely synthesized music with no vocals. The quality of reproduction can range from real-instrument fidelity to tin-can amateurism, depending on your sound card.

LOW-BUDGET SOUND CARD UPGRADE

IF YOU HAVE ONE of the tin-can cards, the **Roland Virtual Sound Canvas** software can help. It enhances music quality by running MIDI files through your PC's Pentium processor instead of through your sound card's FM synthesizer. The improvement can be dramatic, but the VSC has three glaring drawbacks. First, if you already have a wavetable card, such as the Sound Blaster AWE32, use of the VSC will decrease audio quality. Second, it's difficult to compose music using the VSC, due to a noticeable delay between your playing a note and hearing it. And third, it's expensive: The list price is $99. It ships only as one element of a four-part Music Pack that also includes DoReMiX 2 (a music creator), Cakewalk Express (a full-scale MIDI composer), and EasyJuke2 (a "jukebox" utility that plays MIDI files in random, looped, or selected sequence).



SOUNDS GOOD: Internet Music Kit lets you add music to your Web page at a low cost.

ADD AUDIO TO E-MAIL

FINALLY, IF YOU decide that you want to spice up your e-mail with audio and music, Midisoft's **Sound Bar** software simplifies the process. Using its microphone, you can create voice e-mail with a musical background, special effects, or any sound from a .wav file. The biggest drawback of Sound Bar may be its requirement that you use the cumbersome and difficult-to-configure Microsoft Exchange e-mail program.

—Jeff Sengstack

Internet Music Kit

PRO: Simple way to add sound to Web pages.

CON: MIDI only, no speech or vocals.

VALUE: Inexpensive and handy.

Wildcat Canyon Software

510/527-5155

http://www.wildcat.com

Street price: $49

READER SERVICE NO. 775

Midisoft Sound Bar

PRO: Easy way to add audio to e-mail.

CON: You must use Microsoft Exchange.

VALUE: So-so at best.

Midisoft

800/776-6434, 206/391-3610

http://www.midisoft.com

Street price: $30

READER SERVICE NO. 776

Roland Virtual SoundCanvas Music Pack

PRO: Enhances MIDI music for low-budget sound cards.

CON: Expensive; unnecessary for wavetable cards.

VALUE: Good if your sound card needs a lift.

Edirol

360/332-4211

http://www.edirol.com

List price: $99

READER SERVICE NO. 777

HTML Transit Prepares Documents for the Net

ONLINE

WITH THE appearance of intranets, many companies face the prospect of converting years' worth of documents into network-friendly HTML format. For this job InfoAccess invented **HTML Transit,** listed at $495. Transit, which I used in shipping form, converts documents from major word processor formats into HTML (it reads files as far back as Word for Windows 1, Word for DOS 3, WordPerfect 5, and Ami Pro 1.1). The program lets you control every imaginable aspect of page design and render diversely formatted documents as uniformly styled Web pages. But the tool may be too complex to learn and use, even for persons moderately familiar with the ins and outs of HTML programming. Corporate users may find it worth $495, but even they are likely to grow frustrated with an unfortunate two-bit mistake: Transit's developers did not provide support for long file names.

—Richard Overton

HTML Transit 2.0

PRO: Powerful way to translate documents into HTML.

CON: No support for long file names, hard to use.

VALUE: At this price, you'd better need it badly.

InfoAccess

800/344-9737

http://www.infoaccess.com

List price: $495, upgrade $99

READER SERVICE NO. 778

For more information about a product, contact the manufacturer or circle the number on the reader service card. ■

Seagate's all-new TapeStor drives are the effortless, affordable way to store and protect your valuable information.

You'll never need to worry again about system failures, power outages, or accidental deletion of files. With TapeStor, you'll have immediate access to all your backed up data.

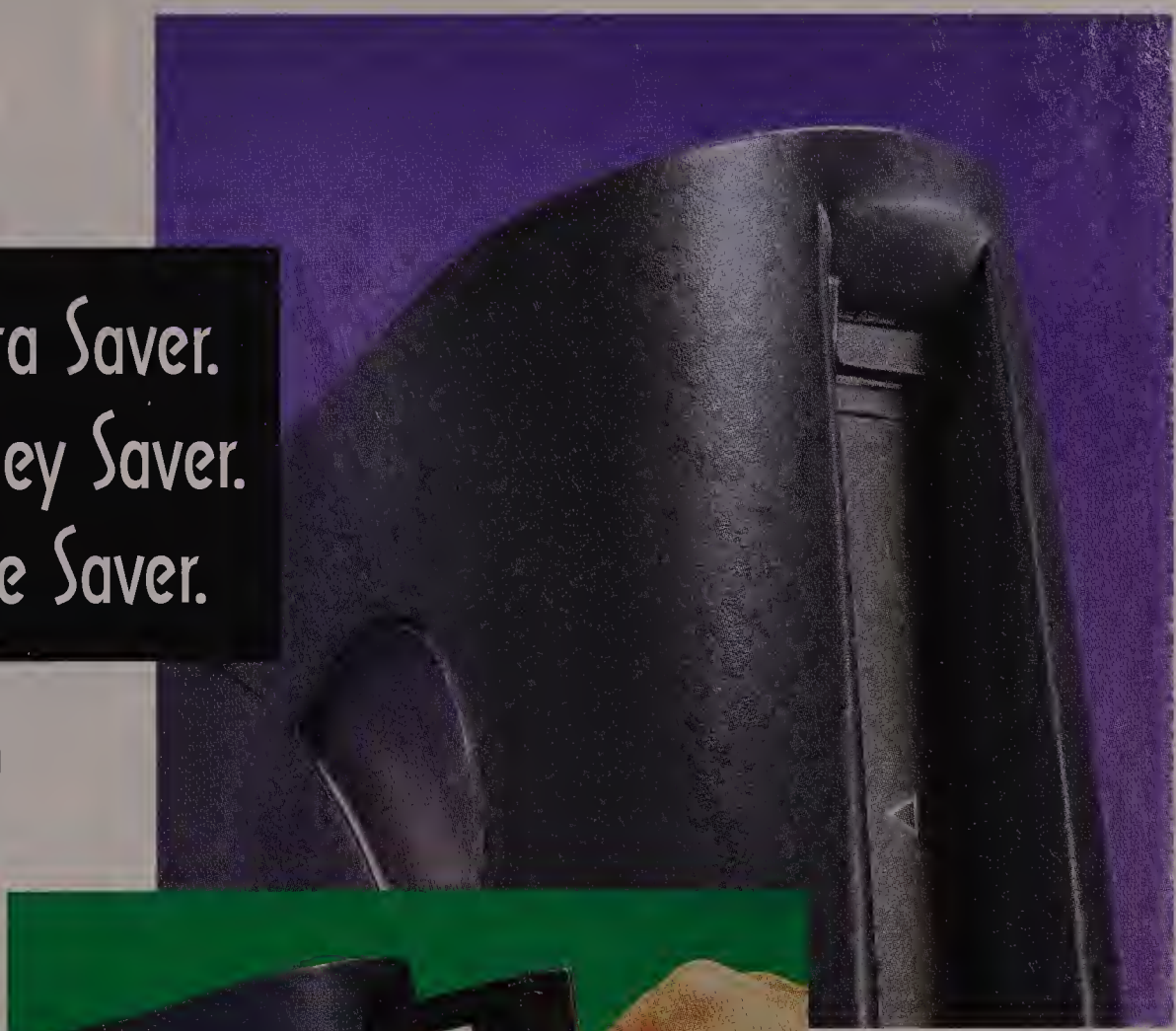
Data Saver. Money Saver. Life Saver.

Our stylish vertical design features an integrated power supply and cable. Whether you choose the 800 MB or 3.2 GB model, you'll have plenty of reliable capacity for backing up, archiving, or transferring your files.

TapeStor drives install in seconds, connecting to the floppy disk controller or parallel port of your IBM compatible PC or workstation. The kit includes everything needed for installation, including a 4-step installation poster. Each TapeStor drive also comes with Tape-It™ for Seagate, a unique drag and drop backup and file management software program. This Win95 compatible program makes your tape drive look just like another disc drive, for easy copying and transfer of files between disc and tape.

Seagate TapeStor drives use industry standard Travan media (the latest in tape storage technology), and are fully compatible with other Travan and QIC-compliant tapes. For more information, contact your local computer retailer, visit our website at www.seagate.com, or call 800-626-6637.

The all-new TapeStor drives from Seagate. Easy to use. Easy to install. Hard to do without.



Seagate

A limited-time mail-in rebate is available from many retailers, including:

BEST BUY COMPUSA MICRO CENTER

Seagate and the Seagate logo are registered trademarks and TapeStor is a trademark of Seagate Technology, Inc. All other trademarks are the property of their respective owners. ©1996 Seagate Technology, Inc.

Circle 209 on reader service card

You can attach just about anything to a Eudora e-mail.

$10 Holiday Reba
Nov. 15, 1996, to Jan. 15, 199

That's right. Not only can you send messages anywhere in the world, but there's no limit on your attachments, too. You can add Shockwave™ animations, RealAudio™ clips, video clips, and Photoshop® masterpieces as well as spreadsheets, documents, or anything else you need. No matter what size or data format, simply drag and drop them on your message.

"Eudora Pro 3.0...sets a new standard for e-mail client flexibility and ease of use." —Information Week

"Eudora Pro 3.0 will continue to dominate the mail client niche of network computing." —Network Computing

Eudora Pro™ 3.0 is written to Internet standards and designed to work without costly, troublesome gateways that can delay or corrupt messages and attachments. So you can be sure all your attachments arrive intact. Plus, when you receive your attachments, you can easily launch them from within your message. You can do it all with Eudora®, the world's #1 Internet e-mail.

To find out more, just call **1-800-2-EUDORA, ext. 27073**. Or send us e-mail at **eudora-salespcw701@eudora.com**. To download Eudora Pro 3.0 and use it FREE for 30 days, just visit our Web site at **www.eudora.com/pcw701**.

***Offer available at CompUSA, Egghead Software, Fry's, and other fine retailers.**

A DIVISION OF QUALCO

QUALCOMM Incorporated, Eudora Division, 6455 Lusk Blvd., San Diego, CA 92121-2779 USA. © 1996 QUALCOMM Incorporated. All rights reserved. Eudora® is a registered trademark and Eudora Pro™ is a trademark of QUALCOMM Incorporated. Photoshop is a registered trademark of Adobe Systems Incorporated. RealAudio is a trademark of Progressive Networks. Shockwave is a trademark of Macromedia, Inc.

HP's NetServer LH Pro (left) is a superb workgroup server, while the NetServer LS4 offers great price/performance for enterprise servers.

TOP TEN NET SERVERS

HP takes it ALL

SOMETHING OLD, SOMETHING NEW, something Compaq, something Big Blue... but mostly things made by Hewlett-Packard.

This month the king of PC laser printers is also the king of PC servers, walking away with Best Buys for both workgroup and enterprise servers, although it gets very close competition from Compaq, Digital Equipment, and IBM.

We divide our reviews into Top 5 Workgroup and Top 5 Enterprise Servers. We rate each server on a combination of performance, features, pricing, reliability, and service and support.

Pentium Pro models are climbing our Top 10 list, but Pentium systems remain competitive. Also note that some servers now arrive with enhanced installation and management tools. ▶

INSIDE

112 **Put Your Own Web to Work**
Group applications grow more attractive on your intranet.

EDITED BY
Eric Bender

BY DAVE KEARNS AND WILLIAM L. RINKO-GAY

PHOTOGRAPH: ROBERT CARDIN

WORKGROUP SERVERS

1 HP NetServer LH Pro

PRO: Top performance, strong software tools

CON: Premium price, mediocre Oracle speed under Windows NT

THE LH PRO comes in the same short and wide configuration as all earlier NetServer LH models, but it features a Pentium Pro-200 CPU (upgradable to dual processors),two integrated Adaptec adapters, and four hot-swappable Seagate 1GB drives. It's easily the fastest workgroup server we've tested overall, and it posted the best scores for file service and Lotus Notes performance under Windows NT, plus Oracle database performance under NetWare.

The $8527 model we tested had eight slots open—four PCI, one PCI/EISA, and three EISA—as well as three externally accessible drive bays. HP also provides a well-thought-out server installation and management tool, NetServer Navigator, that comes on a bootable CD-ROM.

2 Digital Prioris ZX 5166

PRO: Strong performance, reliability features

CON: High price, slow NetWare file service

AT $9100, THIS is the costliest workgroup server among the 11 we reviewed for this issue, but it offers excellent performance, support, bundled software, and fault tolerance options for organizations that need those extra features.

The ZX features a Pentium-166 processor with 1MB of dedicated secondary cache; you can expand to four P-166 processors with 1MB of secondary cache each. This small box also includes redundant fans, two 2.1GB Seagate hot-swappable drives, and two integrated Adaptec adapters. The model we tested had five externally accessible drive bays open and two PCI, two PCI/EISA, and four EISA slots available. Digital has updated its solid ServerWorks Manager tool.

This machine scored first in the NT Oracle test and second in all other tests except NetWare file service, where it did surprisingly poorly.

3 Compaq ProLiant 1500 5/133 Model 2100

PRO: Good software tools, hot-swappable drives

CON: Mediocre speed on Oracle and Notes tests

THIS MACHINE has the fifth-best performance we've seen in a workgroup server, good expandability, clean design, hot-swappable drives, and Compaq's leading-edge software installation tools and server management software. At $7555, it's also priced well below the NetServer LH Pro and Prioris ZX. The model we tested came with a Pentium-133 (it's upgradable to two CPUs) and two hot-swappable 2.1GB Seagate Barracuda drives. For more information, see our October review.

4 Digital Prioris XL 5133

PRO: Good performance for price, clean design

CON: Limited expandability

DIGITAL'S PRIORIS XL 5133 is well engineered, reasonably fast, and bundled with very useful server management software. It's a very good value at $5650. The Prioris runs sixth among the 11 machines in

PC WORLD

TOP 10 SERVERS

	WORKGROUP SERVERS	Overall rating	Street price	CPU/ RAM (MB)	Hard drives/ individual capacity (GB)	Comments	Reader service number
1	HP NetServer LH Pro 800/322-4772 www.hp.com	91	$8527	PPro-200/32	4/1	Fastest performance, clean design, strong software tools.	601
2	Digital Prioris ZX 5166 800/722-9332 www.digital.com	90	$9100	P-166/32	2/2.1	Excellent performance, high-reliability features, pricey.	602
3	Compaq ProLiant 1500 5/133 2100 800/345-1518 www.compaq.com	90	$7555	P-133/32	2/2.1	Good software tools, mediocre application performance.	603
4	Digital Prioris XL 5133 800/722-9332 www.digital.com	89	$5650	P-133/32	2/2.1	Good price/performance, limited upgradability.	604
5	HP NetServer 5/133 LH 800/322-4772 www.hp.com	88	$5540	P-133/32	4/1	Capable server, good price/performance.	605
	ENTERPRISE SERVERS						
1	HP NetServer LS4 5/166 800/322-4772 www.hp.com	92	$20,400	4 P-166/128	4/2.1	Great price, very competitive performance.	606
2	HP NetServer LX Pro 6/200 SMP 800/322-4772 www.hp.com	91	$31,400	4 PPro-200/128	6/2.1	Top file performance, good design, not cheap.	607
3	Compaq ProLiant 5000 6/200 800/345-1518 www.compaq.com	89	$30,899	4 Pro-200/128	4/2.1	Superb database server, mediocre price/performance.	608
4	IBM PC Server 720 800/426-3333 www.ibm.com	89	$26,000	4 P-133/128	6/2.25	Reasonable performance, very good upgradability.	–
5	ALR Revolution Quad6 166/512 714/581-6770 www.alr.com	89	$30,499	4 PPro-166/128	9/2.15	Very good database speed, expandable, lacks software tools.	609

Best Buy http://www.pcworld.com/networking/servers All products: 901

performance. The model we tested came with a Pentium-133 (upgradable to a dual-processor configuration), integrated Adaptec adapter and two 2.1GB Seagate Barracuda drives. For further details, see our October review.

5 HP NetServer 5/133 LH

PRO: Good price/performance and expandability

CON: Mediocre application performance

THIS WORKHORSE offers a good mix of performance, features, and software tools, and it's been attractively repriced at $5540. It comes with a Pentium-133 CPU and four Seagate 1GB SCSI drives and two integrated SCSI controllers. See our October review for more details.

ENTERPRISE SERVERS

1 HP NetServer LS4 5/166

PRO: Excellent performance, good design

CON: No free PCI slots as tested

THE NETSERVER LS4 is no longer the fastest enterprise server we've tested, but with its aggressive $20,400 pricing and strong features, it holds onto Best Buy honors against some very close competition. In performance, it does very well against the new Pentium Pro–based rivals, beaten overall only by the PPro-200–based Data General Aviion (see "Best of the Rest") and NetServer LX Pro.

The system we reviewed held four Pentium-166s (each with 1MB of secondary cache), 128MB of ECC memory (expandable to 768MB), and four hot-swappable 2.1GB Seagate Barracuda drives. All six PCI slots are taken by four HP 100Base-T network adapters and two integrated Adaptec SCSI adapters. For more information, see our October review.

2 HP NetServer LX Pro 6/200 SMP

PRO: Top file performance, good design

CON: Mediocre database price/performance

THE LX PRO OFFERS better expandability and high-reliability features than the older LS4, but at $31,400 it costs more than half again as much.

This is an outstanding file server, performing second only to the DG Aviion 4900-200. However, it's only 8 percent faster than the LS4 on Oracle tests and actually 9 percent *slower* at Notes.

The new chassis is large; it can hold up to 12 hot-pluggable drives and 6 other storage units. Our test machine came with six 2.1GB Seagate drives and two open PCI slots. It sports three hot-pluggable power supplies, and you can buy an optional RAID controller. The system comes with the same well-regarded management software as the LS4.

3 Compaq ProLiant 5000 6/200

PRO: Great database speed and software tools

CON: Mediocre performance for the price

THE PROLIANT 5000 we tested is one formidable machine, with an equally formidable street price of $30,899.

It came with four Pentium Pro-200 CPUs (each with 512K of on-chip secondary cache). It also featured 128MB of ECC memory (expandable to 4GB), specialized ultrahigh-speed processor and memory buses, dual PCI buses, four hot-pluggable 2.1GB Seagate Barracuda drives (expandable to 17.2GB internally and 361GB externally), Compaq's Smart-2 Array Controller (which can set up those drives as a redundant array), and other bells and whistles.

But results on our PC WorldBench for Servers suite were mediocre. The ProLiant 5000 posted the best times for our Oracle NT test. It also showed good speed on our Oracle test under NetWare 4.1, but overall, it trailed the four-CPU 166-MHz ALR Revolution and several other quad-processor machines in that test.

The ProLiant's biggest selling point is ease of management, including a major upgrade of the well-regarded SmartStart installation/management software. You can outfit the system with a wealth of optional redundant components.

This large machine has five hot-pluggable drive bays behind the front panel. The side panel allows access to all slots (two PCI and one EISA were available), memory modules, and processors. The two processor cards each hold two CPUs.

4 IBM PC Server 720

PRO: Good performance, excellent upgradability

CON: CD-ROM drive is on its side

IF YOU WANT expandability, IBM's PC Server 720 has it in spades. The model we tested, priced at $26,000, came with four Pentium-133 processors (each with 512K of secondary cache), 128MB of memory, and 13.5GB of storage in six 2.25GB Quantum Atlas drives. You can boost memory to 1GB and storage (with an external system) to more than 100GB. For more information, see our October issue.

5 ALR Revolution Quad6 166/512

PRO: Blazing database speed, very expandable

CON: High price, lacks software tools

THIS FOUR-PROCESSOR Pentium Pro machine is a great application server, well-designed, extremely expandable, and easily serviced. But at $30,499 it's half again as expensive as our Best Buy, and it lacks a complete suite of software tools. The model we tested had four Pentium Pro-166 CPUs, 128MB of ECC memory, and nine 2.15GB Conner drives. For additional details, see our October review.

Dave Kearns is a network consultant and writer in Austin, Texas. William L. Rinko-Gay directs the Network World–PC World Network Test Center.

Go Online for Web Server Tests

We've added Web server tests to our PC WorldBench for Servers suite. For first results, and complete results of all our tests, go to http://www.pcworld.com/networking/servers.

Best of the Rest

THESE MACHINES were reviewed but didn't make the Top 10 Servers chart:

Workgroup: Acer AcerAltos 900, AST Manhattan S6200, CSS MaxPro 1500 P5-166, Digital Prioris HX 5166, Panda Archistrat 4s Server (workgroup version), Tangent Alcazar II.

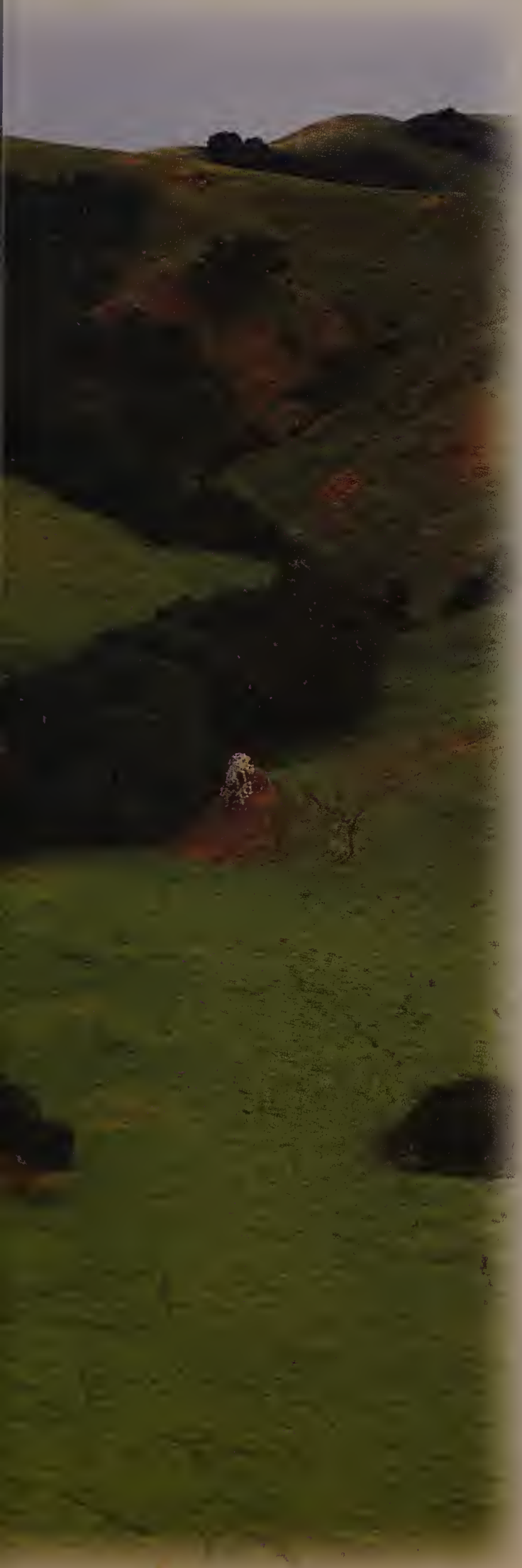
Enterprise: Austin IPC Affinity XE, Data General Aviion 4900-166, Data General Aviion 4900-200, Panda Project Archistrat 4S Server (enterprise version), Tangent Carthage.

WE'VE EXTENDED OUR LINE OF MULTI
MORE PERFORMANCE AND VALUE.

intel inside
pentium PROCESSOR

[illegible] differ. © 19[illegible] Olivetti Personal Computers USA, Inc. All rights reserved. [illegible] Olivetti is a registered trademark and Lifebook is a trademark of Olivetti, S.p.A. The Intel Inside logo and Pentium are registered trademarks of Intel Corporation. All other trademarks and registered trademarks are the property of their respective owners.

MEDIA NOTEBOOKS TO OFFER EVEN
WHAT COULD BE MORE NATURAL?



Echos Pro 150S

Echos Pro Notebook Standard Features:

Pentium® processor, PCI Bus, 256K L2 cache, 16MB RAM expandable to 128MB, 28.8K internal modem, 2 PC Card slots with PC Card Bus and Zoomed Video, Win 95 keyboard, Li-Ion battery, Multi-function bay: 8X CD-ROM and modular FDD (std.), second HDD (opt.)

NEW

Echos Pro 150S

150MHz Pentium® processor, 12.1" SVGA TFT display, 2GB Removable HDD

$4,999*

NEW

Echos Pro 133S

133MHz Pentium® processor, 12.1" SVGA TFT display, 2GB Removable HDD

$3,999*

NEW

Echos Pro 133D

133MHz Pentium® processor, 12.1" SVGA DSTN display, 1.3GB Removable HDD

$3,499*

NEW

The optional Echos™ Pro Docking System offers full port replication, Multi-function bay, drive bay, 2 PCI Card slots, plus much more. It's the perfect solution for desktop replacement.

Echos P133S

Echos Notebook Standard Features:

Pentium® processor, PCI Bus, 256K L2 cache, 1.3GB removable HDD, Multi-function bay: 6X CD-ROM and modular FDD (std.), second battery (opt.)

Echos P133S

133MHz Pentium® processor, 16MB RAM expandable to 40MB, 11.8" SVGA TFT display

$3,399*

Echos P120E

120MHz Pentium® processor, 8MB RAM expandable to 40MB, 11.3" SVGA TFT display

$2,799*

Echos P100E

100MHz Pentium® processor, 8MB RAM expandable to 40MB, 10.4" SVGA TFT display

$2,399*

Echos P100C

100MHz Pentium® processor, 8MB RAM expandable to 40MB, 11.3" SVGA DSTN display

$2,099*

For more information about the Echos Series, call us toll-free at **1-888-465-4838** *or visit our Web site at* ***www.olivettipc.com***

olivetti

personal computers

Circle 162 on reader service card

Put Your Own Web *to* Work

Group applications get friendlier and cheaper on your organization's intranet. Here are three of the best packages for sharing information—and work.

LET'S FACE THE FACTS, shall we? Your company is busily turning its network into an intranet, making services old and new available through a common Web browser. And the point of throwing all that fabulous Web pixie dust over your computers is not to let you enjoy cool multiuser fantasy games during lunch hour, to let the gang in sales post brochures, or even to give the H.R. folks a place to distribute those reference materials you check once a year.

No, the point of an intranet is to provide new ways *to actually let you work together better with other people*—coworkers, contractors, even those pesky folks known as your customers.

The Internet was born to let anyone interact with anyone else, or any other group. An intranet lets your organization turn the fantastic cornucopia of Net technology loose on collaboration, the thorniest of all business problems.

With an intranet in place, you've got the raw infrastructure for group applications. You don't need to install software on everyone's PC—they can just use their Web browser. You don't have to hire programmers with bad attitudes and expensive habits—slap on off-the-shelf applications instead. And while the main costs are in employee time, the software costs have plummeted.

Here are three leading group applications for your intranet, all priced at no more than $50 per user (not including server software). Attachmate's OpenMind, the best tool for document distribution and group discussions, is now being remolded for intranets. Digital's AltaVista Forum tackles a broader range of tasks than OpenMind. And the third product, SoftArc's FirstClass, just wants to be your everything, furnishing e-mail, group discussions, and, soon, full Net access.

OPENMIND: GROUPWARE WITHOUT HASSLES

GROUPWARE HAS A reputation for being complicated and costly to set up, and this reputation is richly deserved. In their demands for massive amounts of hardware and crack teams of professionals, some Lotus Notes rollouts are second only to Desert Storm.

Attachmate's OpenMind 3.0 offers a low-hassle groupware alternative: about 60 percent of Notes' power for about 10 percent of Notes' complexity. The package provides discussion forums and document management functions for an extremely reasonable cost of $75 for the server software and $50 for each user. You can even download a free five-user version from Attachmate's Web site, a good way to give the product a trial run.

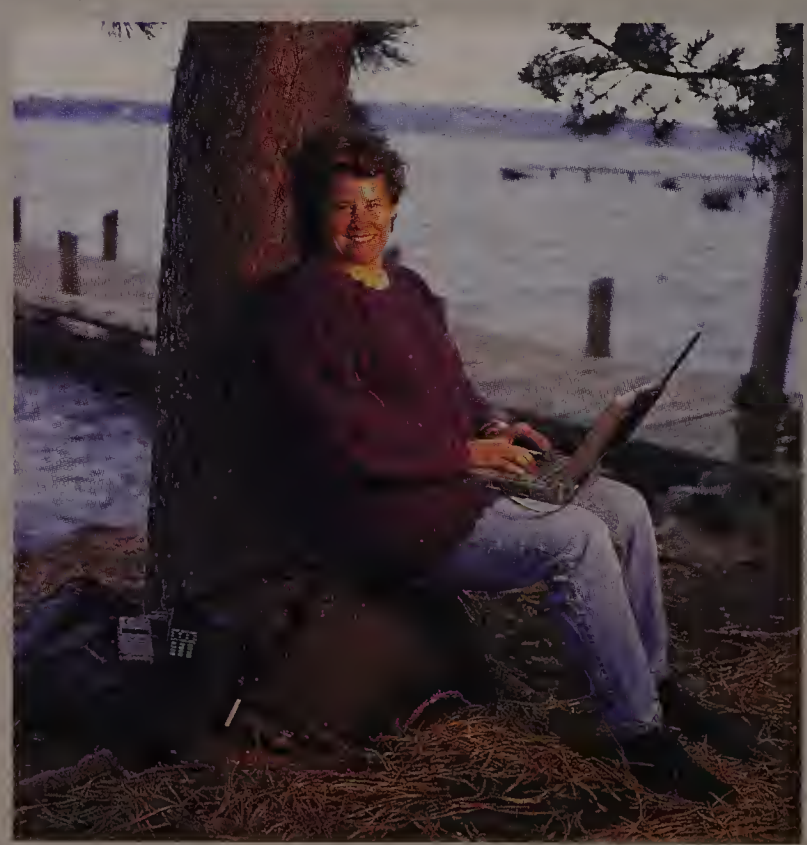
The OpenMind server software runs on either a Microsoft NT Workstation or an NT Server. OpenMind is simple enough to set up, if you can get a little help from your network administrator about how TCP/IP networking works. And the package's templates serve nicely as starting points for customized information ▶

Getting the Word Out to the Field

HERE IS A CLASSIC OPERATIONAL PROBLEM: You've got hundreds of field service employees in many locations across the United States—so how do you keep everyone in synch and get them the up-to-date information they need?

AT&T Wireless Services' Wireless Data Division, which operates a national cellular data network, uses OpenMind to help solve this problem, says Vicki Miller, director of information systems and services. More than 300 employees share technical documents, schedules, and other key information on an OpenMind server at the group's Kirkland, Washington, headquarters.

OpenMind 2.0 "just took off," says Miller. "It does not take a lot of administration at all," she adds. She expects to roll out the 3.0 upgrade soon after it ships. "We want to allow people with any Internet browser to get to OpenMind from the field."



AT&T's Vicki Miller says OpenMind "just took off." Over 300 staffers use it.

PHOTOGRAPH: RICH FRISHMAN

simply
delivers.
at your
service.
SyncMaster™
17GLsi
monitor.
simply
samsung.

superior image

1280 x 1024 maximum resolution.
.26mm dot pitch.
digital on-screen controls.
15.75" viewable area.
user defined color control.
UltraClear™ screen coating.

reliability

24-hour/7-day live support.
3-year warranty.
Advanced Replacement Program.

value

Colorific color matching software.
MacMaster Mac adapter.
PowerMaster* power down software.

1 800 933 411
www.sosimple.

Nov. 1996 20GLsi

Aug 1996 21GLs

Aug. 1996 17GLsi

Aug. 1996 21GLs

Summer 1996 17GLsi

Partner of the Year 1996

1996 VAR Business Product Award Winner 17" monitors

Sept 1995 17GLi

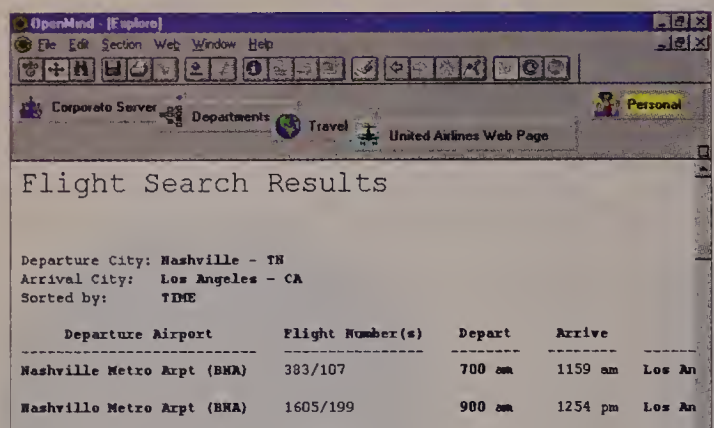
Feb. 1996 6Ne

May 1996 20GL

June 1996 17GLsi

July 1996 17GLi

July 1996 17GLsi



OPENMIND 3.0'S BUILT-IN BROWSER lets you view Web pages as easily as OpenMind discussions and documents.

databases. We had discussion forums and document sharing under way in less than an hour. Starting a new discussion forum is no more complicated than creating a new folder on your hard disk.

Unlike most groupware systems, OpenMind is also easy to keep running and to tailor to your organization's needs. For instance, you can let users add themselves to discussions, instead of requiring an administrator to create accounts.

OpenMind's client software runs on Windows 3.1, Windows 95, and Windows NT. Its built-in Web browser is no substitute for Netscape Navigator or Microsoft Internet Explorer, but it does let you build forums that display Web-based information as seamlessly as information stored by OpenMind itself. For example, a Travel Information forum can include links to airline and hotel reservation Web pages *plus* OpenMind documents that describe your company's travel policies.

And by the time you read this, you should be able to use any Web browser to participate in OpenMind discussions. (The OpenMind Web server add-on was not available for testing at press time.)

Besides offering easy access to Internet material, OpenMind 3.0 provides very well-rounded capabilities for information storage and retrieval. You can create simple text-based discussion messages using its rather plain editor, or you can attach documents, spreadsheets, graphics, or HTML files that can be viewed with its full-featured file viewer. Text information already stored in OpenMind can be indexed and retrieved using the high-powered Verity search engine.

You can also use OpenMind as a shared document management system.

The program lacks the form creation and workflow mechanisms found in Notes. You can't, for instance, automatically route information to a predefined list of recipients. It also has no built-in e-mail capability, though you can set up a $495 gateway to external e-mail systems.

What OpenMind does is make easy what other groupware makes hard.

—Bill Lawrence

OpenMind 3.0

PRO: Easy to use, excellent discussion forums and document sharing

CON: Not as broad as some group applications

VALUE: Unbeatable for information sharing

Attachmate

800/426-6283, http://www.attachmate.com/

List price: $75 (server), $50/user

READER SERVICE NUMBER 723

ALTAVISTA FORUM: SUITE COLLABORATION

BORN FOR THE World Wide Web, Digital Equipment's AltaVista Forum 2.0 lets you use any browser to establish teams to work on projects or manage enterprise-wide repositories of information.

The package bundles newsgroup access, group discussion, document sharing, calendaring, polling, and general search capabilities. Some of these features are not as polished as in rival packages, but Forum benefits from being a member of the powerful AltaVista suite, and the package is easy for a network administrator to install and run. We tested Forum 2.0 with Microsoft's Internet Information Server.

Once Forum is open for business, you check in at a home page dubbed the Summit, which gives you a view of all your options. You also can have a Personal Vista that stores your personal calendar; it lets others view that calendar, drop you a note via e-mail, send you a file, join in a structured discussion with you, and do real-time "chatting." Most strikingly, you can create an individualized Newsstand service on any NNTP-based (newsgroup) server. Newsstands are front ends for the AltaVista search engine, a version of which is bundled into Forum.

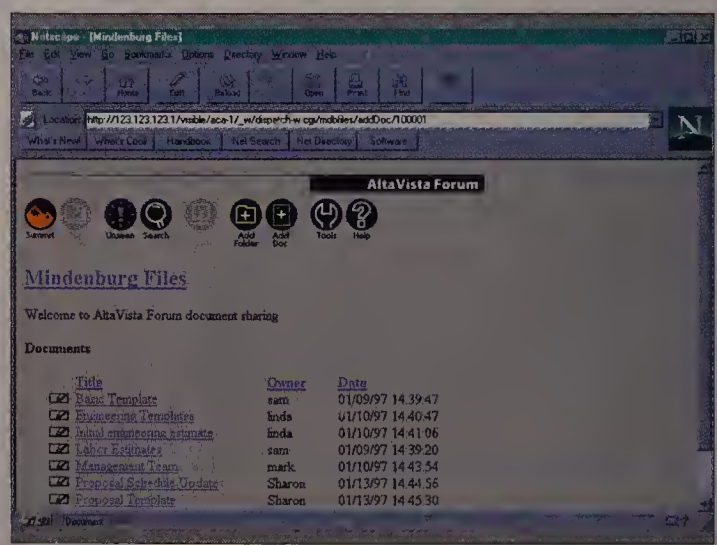
A Team Vista provides similar tricks for any teams of which you're a member.

Forum's calendars are easy to use, but not terribly useful. You get either a day view or a month view. You can submit a meeting request, and other potential attendees are notified via e-mail. When they accept or decline, you receive a message via e-mail as well. Unfortunately, you must then go back into the calendar to manually update the meeting entry. In addition, the calendar can't roll personal calendars into a team or Summit calendar.

The discussion forums aren't as slick as those in OpenMind, but they are threaded to make it easy to see who said what and when. The owner of the forum can set up message categories. Your messages can be text, include a URL to a useful file, or attach the file itself.

You can also poll users on a forum topic. Anyone who responds to the topic can "vote." AltaVista tracks responses and shows them in a handy graphical view.

A document-sharing forum lets you share documents in hierarchical folders much like those in Windows 95. Doc- ▶



ALTAVISTA FORUM MAKES IT EASY to share documents with a team or an organization via a standard browser.

While you're sitting there, something is happening in the world. It's called "the news." With PointCast, the Internet news network, you can get it broadcast straight to your desktop: weather updates, world news, sports, stocks, industry news and more. And suddenly your computer screen is transformed into a dynamic, multi-colored newswire complete with flying headlines, vibrant graphics and scrolling stock ticker. PointCast is completely customizable so you can get exactly the news you want. CNET awarded it the Best Internet Application of 1996 and *The Wall Street Journal* gives PointCast "'must-have' status for in-the-know computer owners." You can find PointCast at your local retailer or download it free at www.pointcast.com.

Your live [news] feed from the world

Have you seen it?

free download

[www.pointcast.com]

PointCast™ **Your desktop newscast.**

A Firsthand Introduction to FirstClass

REMEMBER THESE frustrations from your college days? You couldn't make your professor's office hours because they conflicted with your class schedule. You missed a lecture and arranged to get notes from a classmate who never showed up. You pedaled all over campus posting signs about a student meeting, but nobody saw them. (Does this remind you of anything in your current job?) Students at Emory University in Atlanta avoid such hassles by going online with SoftArc's FirstClass, thanks to the foresight of biology professor Pat Marsteller. —Editor

Students come to class prepared for the day's lecture, eager to learn from each other and from us.

A FEW YEARS AGO, my son Sean Murphy and I met with area high school teachers to figure out how to keep them in touch with their mentors at Emory University. Afterward, Sean and I applied for and were awarded a minigrant from Georgia Tech to find a computer program that would bridge this gap in communication. FirstClass provided everything we needed and more.

After implementing the system for the high school teachers—dubbed LearnLink—a colleague and I decided to try FirstClass in our physiology class, in hopes it would give students more contact with each other and with us. We posted students' resumes (with photographs) and created conference folders for discussing class topics.

The students' response was exhilarating. Before LearnLink, they sat passively through lectures, then made a mad dash for the exits when class ended. Now, students come to class prepared for the day's lecture and eager to learn from each other and from us.

Today, 700 classes in all departments on campus are using FirstClass. Professors distribute course materials online. Students turn in assignments and exams electronically. Professors cut their office hours by communicating with students via e-mail. And everyone taps FirstClass to access Internet resources.

Professors in the Emory Medical School, for example, post all instructional materials for first-year medical students on FirstClass. Student organizations use FirstClass to notify their members of meetings. And students and faculty at Emory's two-year campus in Oxford, Georgia, connect to the Atlanta campus via FirstClass.

Professors receive one-on-one training on how to administer and customize the software. Typically, the professors then administer a conference for their classes. Within this conference, a professor can create a discussion area, a question-and-answer session, a chat area, and a drop-box folder for assignments and exams (which only the professor can read). Professors typically leave most of their conferences open. That way, all students can learn from the class, and students who may be interested in taking the class can view the online syllabus and browse the discussions before registering.

The free FirstClass client is distributed to students via the Web, floppy disk, or file server. Students moving into a dorm with PCs or Macs get the FirstClass client installed for them. The 60 percent of students who don't own computers can get onto the system from several large labs on campus.

Reading Ahead, Reaching Off Campus

ONE UNDERGRADUATE science research program used online discussions in FirstClass to enhance weekly seminars. Before the seminar, a professor would post a case study highlighting the topic. Program participants—students and researchers at the Centers for Disease Control—would then discuss the case.

During a course I taught on evolution, students kept an online journal in FirstClass, sharing their reactions to class readings. Across campuses, students from a biology class at the University of Virginia exchanged essays and assignments with students in a comparable class at Emory. And in my Women in Science class, I import related Usenet newsgroup discussions from the Internet into FirstClass so students can participate in them.

Our FirstClass system has increased students' interest in their classes. And that means they're learning more. —*Pat Marsteller*

PHOTOGRAPH: ANN STATES

ADMINISTRATOR SEAN MURPHY AND Professor Pat Marsteller enhance class discussions at Emory University with SoftArc's FirstClass system for e-mail and collaboration.

DREAMS.

COME TRUE.

A powerful notebook that you can actually afford.

A mobile computer so advanced, it'll do things not invented yet.

This year's mobile Pentium® processor (133MHz), not last year's.

pentium® PROCESSOR

A portable computer that won't be obsolete before your wardrobe is. Thanks to a modular media bay with 10X CD-ROM and FDD.

Screens you can actually read, like 12.1" SVGA.

32-bit CardBus support for data at a faster rate.

Zoomed Video for full-screen, full-motion video.

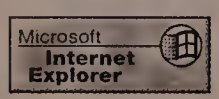
Extraordinary PCI bus advantages, thanks to revolutionary new Advanced PCI technology.

Productivity improvements, like livegear™ accessories.

Finally, enough memory. Like 16MB EDO RAM (upgradeable to 80MB).

Bottom line: the notebook that's tops.

Introducing the new Extensa™ 650 portable computer. Proof that being practical does not require sacrifice. It's powerful. Capable. Extremely affordable. And yet, willing to change. Thanks to the flexibility of its modular media bay. Plus, extraordinary new Advanced PCI technology that will offer faster network access, and support for new products like digital cameras and VCRs from the same Advanced PCI Card expansion slot. Add to this the fact that the TI Extensa 650 tips the scales at only 6.7 pounds, and it's our competitors' worst nightmare. And your dream come true. For more information, call 1-800-TI-TEXAS, e-mail: 2ti@msg.ti.com Internet: http://www.ti.com/notebook Or for a direct quote, visit http://www.infoquote.com/ti/ and use code TIPCW.



Specifications depending on model. Extensa, livegear and "Start Doing Extraordinary Things" are trademarks of Texas Instruments. Pentium and the Intel Inside logo are registered trademarks of Intel Corp. The Genuine Microsoft Products logo is a trademark and Microsoft, Windows, and the Windows logo are registered trademarks of Microsoft Corp. © 1996 TI.

Circle 242 on reader service card

uments can be attached files or simply text that you type into a dialog box.

It's easy to find your way around, and pages and menus are dynamically constructed as you click your way around the site. But often you find yourself retracing your steps rather than jumping to where you want to go. In addition, if someone else changes a page while you are viewing it, you need to reload the page or you won't see the changes.

Overall, AltaVista Forum is an impressive tool. It lacks Lotus Notes' inherent security and is a bit more difficult to navigate than Notes, OpenMind, and some other products. But the features it has are easy to set up and use, and the package is powerful enough to be a natural fit on many intranets. —*William L. Rinko-Gay*

AltaVista Forum

PRO: Good discussion and document support, full use of browsers

CON: Weak calendaring, some interface glitches

VALUE: Good tool in very strong intranet suite

Digital Equipment Corp.

http://www.altavista.software.digital.com/

Pricing: Starts at $495 for 25 users

READER SERVICE NO. 724

FIRSTCLASS: MAC E-MAIL EMBRACES WINDOWS AND WEB

A VETERAN MACINTOSH e-mail system with simple group-collaboration tools, SoftArc's FirstClass has added a slew of enhancements and support for Windows, and it's now about to plunge into the Web. FirstClass offers a wide range of capabilities at a low price, but some of its quirks may puzzle Windows users.

FirstClass can't compare to Lotus Notes as a workflow tool, but it packs plenty of functionality into a more economical package and does far more than OpenMind and AltaVista Forum. It includes full-featured e-mail, group conferencing, real-time discussions, some Internet links, forms processing, database access, and now remote support for all features.

Group conferences offer threaded messages, public chats, and connections to Internet newsgroups. Users can organize messages into folders they create with the New Folder option from the Conference menu. Every message is signaled in the conference with an envelope icon (red for unread messages, white for unsent ones). Each group conference folder gets its own window. The FirstClass administrator can establish just about any kind of access to conferences that you might want.

FIRSTCLASS CONFERENCES help students and professors at Emory University learn from each other.

FirstClass lets you combine customized access controls for individuals or workgroups with custom e-mail forms for sophisticated applications without programming. FirstClass includes forms for phone messages, information requests, and purchase requisitions. You can also use the bundled FirstClass Designer to create your own forms for more tailored workflow applications. Tight database links let users query corporate databases via an information request form and get the results back in a graphical form.

> FirstClass bundles e-mail, group conferencing, real-time discussions, and forms processing—and will soon add full access via standard Internet clients.

Installation is straightforward for your net administrator, as long as he or she has some Windows NT networking savvy. Optional support is available for Macintosh clients ($495), text-only terminals ($495), or TCP/IP networks ($995).

Using FirstClass's Mac-like e-mail client on Windows can be disorienting, like switching between a stick shift and an automatic transmission. For example, every time you open a nested folder you open yet another window, quickly causing massive MacWindow clutter. This should be fixed in version 3.5 (shipping at press time), which will include such Windows features as right-mouse button support and a customizable toolbar.

Organizations with hardcore Windows users may want to wait for version 4.0, which is due early in 1997. In addition to introducing group calendaring and drag-and-drop To Do lists, it will let you use any Internet e-mail package as a client, and you'll be able to access all other FirstClass services with standard Web browsers.

FirstClass is a good, economical choice for e-mail and conferencing, especially if your network is a mixed bag.

—*Pete Loshin*

FirstClass Server for Windows 3.0

PRO: Economical, powerful group applications

CON: User interface glitches, Web browser support not available until early 1997

VALUE: Mainstream group tools in an attractive but idiosyncratic package

SoftArc Inc.

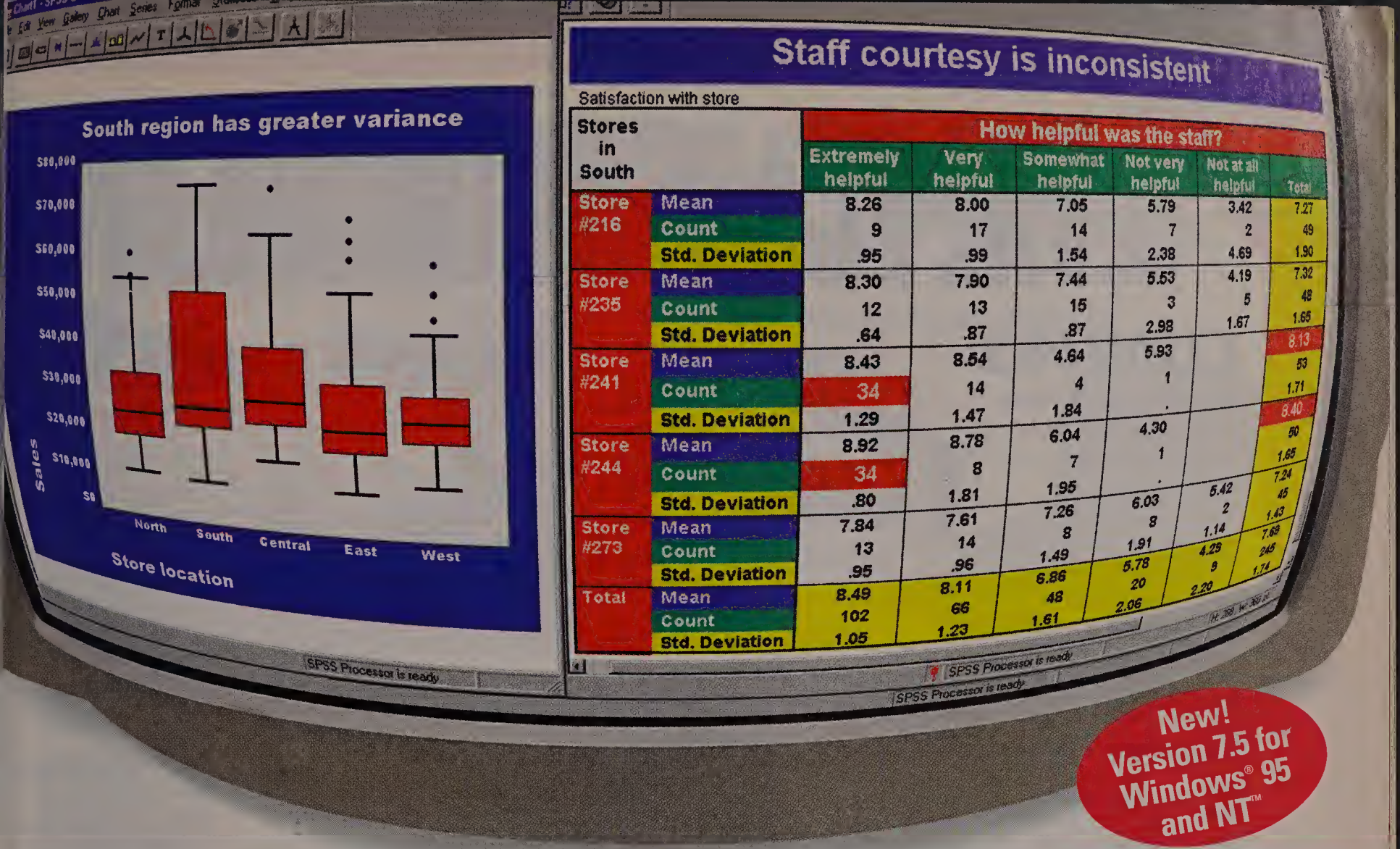
905/415-7000, http://www.softarc.com

Pricing: Starts at $495 for server and five users

READER SERVICE NO. 725

Bill Lawrence manages network computing for a major Western utility. Pete Loshin is an Internet consultant and author in Watertown, Massachusetts. William L. Rinko-Gay is director of the Network World–PC World Network Test Center.

For more information about all products in this article, circle reader service no. 913. ■

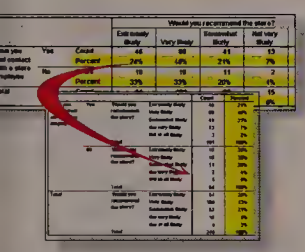


New! Version 7.5 for Windows® 95 and NT™

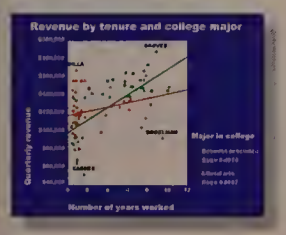
Unleash the power in your data

SPSS mines your data in ways no spreadsheet or reporting tool can

Go beyond spreadsheets with analytical techniques such as crosstabs, regression, factor and over 100 others.



Use SPSS' multidimensional pivot tables to discover critical information that might be buried in traditional reports.



Get the best picture of your data with over 60 high-resolution business, professional and quality charts.

The critical information you need, like the variance and distribution of your data, isn't in simple summary reports. To compete and win, you need to take the next step – advanced analysis that leads to better decisions. Use powerful statistical methods and revealing charts to spot patterns and trends. Discover what's significant. Make better forecasts. You don't have to be a statistician to use SPSS. SPSS assists you with a tutorial, step-by-step instructions and "What's this?" help. We help you find a solution with a range of training and analytical consulting services. See our Web site for a white paper on how statistics help you achieve a competitive advantage.

SPSS
Real Stats. Real Easy.℠

For more information

Call 1 (800) 543-5837 A5837

or fax 1 (800) 841-0064
Visit our site on the World Wide Web: http://www.spss.com
or e-mail: sales@spss.com

We speak your language with 26 offices and 60 distributors worldwide.

Circle 253 on reader service card

SPSS is used today to:

- Analyze your database
- Accurately forecast sales
- Increase customer satisfaction
- Find the most profitable segments
- Improve mailing responses

"Users will want this program for when their spreadsheets run out of steam." – PC Magazine

"...fast, powerful, robust, and a joy to use." – Windows Sources

"...easy enough for statistics newcomers, but includes features that power users require." – PC World

"...an essential tool" – PC Week

CDW CIRCLE OF SERVICE®

THE PCs OF YOUR DREAMS!

COMPUTER DISCOUNT WAREHOUSE™

COMPAQ

Presario 4704

Smartly designed for the home

✔ 133MHz Intel® Pentium® processor ✔ 16MB EDO RAM standard, 128MB maximum ✔ 1.6GB hard drive ✔ 6X CD-ROM drive ✔ 32-bit PCI accelerated graphics ✔ JBL Pro stereo speakers ✔ 33.6K bps DSVD data/fax voice modem ✔ Compaq keyboard and 2-button mouse ✔ Software included: Microsoft® Windows 95, Compaq Phone Center, Microsoft Works, CorelDRAW! 5 and more! ✔ 1-year limited warranty

$1599.00

CDW 73389

Compaq Presarios

Desktop	CPU	RAM	Hard drive	CD-RDM	Price	CDW
3020*	166MHz Pentium	24MB	2GB	4-disc changer	$3199.00	74670
4402**	133MHz Pentium	16MB	1.6GB	6X	$1999.00	73388
4112	120MHz Pentium	16MB	1.6GB	6X	$1399.00	73385
4122	150MHz Pentium	16MB	2.5GB	8X	$1899.00	73386
Mini-tower	**CPU**	**RAM**	**Hard drive**	**CD-ROM**	**Price**	**CDW**
4712	166MHz Pentium	24MB	2.5GB	6X	$1899.00	73390
4716	200MHz Pentium	32MB	2.5GB	8X	$2299.00	73391
6708	200MHz Pentium	32MB	2.5GB	8X	$2699.00	73393
8712	200MHz Pentium	32MB	3.8GB	8X	$2699.00	77480

*All-in-one design includes built-in 12.1" LDC panel
**All-in-one design includes built-in 15" monitor

IBM® Aptiva C Series

Call for the Aptiva S Series PC

Touch new worlds of power with IBM's Aptiva—the interactive PC for entertainment, education, communication and productivity

✔ Intel® Pentium® processors: 133MHz (C32, C33), 166MHz (C65), 200MHz (C73) ✔ RAM: 16MB standard, 128MB maximum ✔ Hard disk drives: 1.2GB (C32), 1.6GB (C33), 2GB (C65), 2.5GB (C73) ✔ 6X (C32) or 8X CD-ROM drive ✔ ATI Rage graphics controller with Total Image 3D (C33, C65, C73) ✔ 2MB video memory standard ✔ MPEG-1 video support ✔ Includes stereo speakers and microphone ✔ 28.8K bps data/fax/voice modem with speakerphone capabilities ✔ Keyboard ✔ 2-button mouse ✔ Windows® 95 software ✔ 3-year limited warranty

Aptiva C32 ..... **$1497.13** CDW 74006
✔ 133MHz Pentium, 1.2GB hard drive, 6X CD-ROM drive

Aptiva C33 ..... **$1699.74** CDW 73083
✔ 133MHz Pentium, 1.6GB hard drive, 8X CD-ROM drive

Aptiva C65 ..... **$1942.95** CDW 73084
✔ 166MHz Pentium, 2GB hard drive, 8X CD-ROM drive

Aptiva C73 ..... **$2081.96** CDW 73085
✔ 200MHz Pentium, 2.5GB hard drive, 8X CD-ROM drive

HEWLETT® PACKARD HP Vectra 500 Series PCs

Complete PC solution for small businesses

Hewlett Packard and Microsoft have joined forces to provide you with a personal computing solution to improve your business success. The HP and Microsoft Small Business Center Vectra 500 Series PCs are designed specifically for small and medium-sized businesses and integrate everything you need into one powerful but simple-to-use PC package. No longer are you forced to pay too much for features you don't need, or work with a computer that isn't designed for business applications. With the Small Business Center, you get the PC you need to work better and smarter—without straining your business technology budget.

Hewlett Packard Vectra 500 Series PCs Includes a complete suite of Microsoft software!

◆ Windows® 95 with Plus! Companion ◆ Microsoft Office Professional with Bookshelf '95 ◆ Publisher ◆ Internet Explorer ◆ Also includes Microsoft Natural Keyboard and mouse!

Mini-tower	CPU	RAM	Hard drive	CD-ROM	Price	CDW
525CD	133MHz Pentium	16MB	1.2GB	8X	$1731.34	76404
525MCx	133MHz Pentium	16MB	1.2GB	8X	$1905.72	76405
525CD	166MHz Pentium	16MB	1.6GB	8X	$2071.12	76406
525MCx	166MHz Pentium	16MB	1.6GB	8X	$2229.46	77135
525MCx	200MHz Pentium	32MB	2.5GB	8X	$2886.62	77136

AST AST Advantage! Lifestyle Series

Ideal home office productivity solution

Advantage! 9310

✔ 166MHz Intel Pentium® processor ✔ 256KB Level 2 cache ✔ 24MB RAM standard, 128MB maximum ✔ 2.5GB hard drive ✔ 8X CD-ROM drive ✔ PCI graphics with 1MB video RAM std. (2MB max.) ✔ 16-bit stereo 3D sound with speakers ✔ Software: Microsoft® Windows 95; Intuit Quicken SE; Lotus® SmartSuite® '96; Groliers Encyclopedia; Mayo Clinic Health Book; Descent 2 (2D) and much more! ✔ 1 year on-site warranty

$2199.00 CDW 71901

33.6K bps data/fax/voice modem, desktop personal scanner and infrared data transfer port

The complete interactive communications PC

Advantage! 9312

✔ 166MHz Intel Pentium® processor ✔ 256KB Level 2 cache ✔ 24MB RAM standard, 128MB maximum ✔ 2.5GB hard drive ✔ 8X CD-ROM drive ✔ PCI graphics with 1MB video RAM std. (2MB max.) ✔ 16-bit stereo 3D sound with speakers ✔ Software: Microsoft® Windows 95; Intuit Quicken SE; Lotus® SmartSuite® '96; Groliers Encyclopedia; Mayo Clinic Health Book; Intel Video Conferencing; Intel Intercast and much more! ✔ 1 year on-site warranty

$2299.00 CDW 71902

28.8K bps data/fax/voice DSVD modem, POTS-video capture, TV tuner card, camera and infrared remote control

800-434-4239
www.cdw.com

CDW® sells for less and services you better!™

©1997 CDW Computer Centers, Inc. PCW1913 PC World 1/97

AT REAL-LIFE PRICES!

For hundreds of other great CDW values, see our ad in the back of this issue!

CDW CIRCLE OF SERVICE®

COMPUTER DISCOUNT WAREHOUSE™

COMPAQ LTE 5000 Series

Call your CDW Account Executive for the full line of Compaq carrying cases!

▼ Intel Pentium® processors ▼ 8MB or 16MB RAM standard, 72MB or 80MB maximum respectively ▼ 810MB, 1.35GB or 2.16GB removable hard disk drives ▼ 3.5" 1.44MB diskette drive ▼ Optional 4X or 6X CD-ROM drive

	LTE 5150	LTE 5280	LTE 5300	LTE 5380
CPU	100MHz Pentium	120MHz Pentium	133MHz Pentium	133MHz Pentium
RAM	8MB std., 72MB max.	16MB std., 80MB max.	16MB std., 80MB max.	16MB std., 80MB max.
Hard drive	810MB	1.35GB	1.35GB	2.16GB
Color display	11.3" SVGA dual-scan	11.3" SVGA active-matrix	12.1" SVGA active-matrix	12.1" 1024 x 768 active-matrix
Price	$2889.00	$4429.00	$4799.00	$5789.00
CDW	71117	68333	68334	71119

IBM® ThinkPad® 365ED

IBM Business Partner

The speed and value you need in a full-size, multimedia notebook computer

▲ 100MHz 5x86C CPU ▲ 8MB RAM standard, 24MB maximum ▲ 540MB hard drive ▲ Integrated 4X CD-ROM drive ▲ External 3.5", 1.44MB floppy disk drive ▲ 10.4" dual-scan color display ▲ Preloaded Windows® 95 ▲ 6.4 lbs. ▲ 1-year warranty with International Warranty Service®

$1578.95 CDW 68649

PRICE DROP!

TEXAS INSTRUMENTS Extensa 650CD

◆ 133MHz Intel® Pentium® processor ◆ 16MB EDO RAM standard, 80MB maximum ◆ 1.35GB removable hard disk drive ◆ 10X CD-ROM drive ◆ 12.1" DSTN dual-scan SVGA color display

$3183.04 CDW 75727

FREE
with Extensa 650CD purchase*
▼ 8MB EDO RAM upgrade
▼ Duracell NiMH battery
CDW 77784
*All three items must appear on the same invoice at time of purchase. While supplies last.

AST Ascentia J50

PC MAGAZINE EDITORS' CHOICE August 1996 AST Ascentia J50

Progressive features and advanced ergonomics--at an agressive price

Call for the Ascentia A and P Series notebooks!

▲ 133MHz Intel Pentium processor ▲ 8MB RAM standard, expandable to 40MB ▲ 800MB removable hard disk drive ▲ 1.44MB internal floppy disk drive ▲ 10.4" active-matrix color display ▲ Integrated 14.4K bps data/fax modem ▲ Integrated stereo speakers and microphone ▲ 5.8 lbs. ▲ 3-year limited warranty with 48 hour rapid repair for 1st year

Incredible low price! **$1899.00** CDW 67377

TOSHIBA

Call for our full Toshiba notebook lineup!

Satellite 200CDS

NEW!

✔ 100MHz Intel Pentium® processor ✔ 8MB EDO RAM standard, 40MB maximum ✔ 810MB hard drive ✔ 6X CD-ROM drive ✔ 11.3" dual-scan SVGA color display

$1979.00 CDW 77236

Satellite Pro 430CDS and 430CDT

NEW!

✔ 120MHz Intel Pentium® processor ✔ 16MB EDO RAM standard, 48MB maximum ✔ 1.2GB hard drive ✔ 10X CD-ROM drive ✔ 11.3" dual-scan (430CDS) or active-matrix (430CDT) SVGA color display

430CDS **$2479.00** CDW 77242
430CDT **$3279.00** CDW 77237

Tecra 510CDS and 510CDT

133MHz Intel Pentium® processor 16MB EDO RAM standard, 144MB maximum ✔ 1.2GB (510CDS) or 2.1GB hard drive (510CDT) ✔ 10X CD-ROM drive ✔ 12.1" dual-scan (510CDS) or active-matrix (510CDT) SVGA color display ✔ 28.8K bps data/fax modem

510CDS **$3679.00** CDW 77238
510CDT **$4959.00** CDW 77241

Tecra 510

Tecra 500CS and 500CDT

NEW!

✔ 120MHz Intel Pentium® processor ✔ 16MB EDO RAM standard ✔ 1.26GB hard drive ✔ Internal 6X CD-ROM drive, swaps with standard 1.44MB floppy drive (500CDT) ✔ 12.1" dual-scan (500CS) or active-matrix (500CDT) SVGA color display ✔ Integrated 28.8K bps fax/modem

500CS **$2949.28** CDW 70242
500CDT **$4168.88** CDW 70243

Satellite Pro 420CDS and 420CDT

✔ 100MHz Intel Pentium® processor ✔ 8MB EDO RAM standard, 40MB maximum ✔ 810MB (420CDS) or 1.26GB (420CDT) hard drives ✔ Internal 6X CD-ROM drive, swaps with standard 1.44MB floppy drive ✔ 11.3" dual-scan (420CDS) or active-matrix (420CDT) SVGA color displays

420CDS **$2149.63** CDW 70245
420CDT **$2868.39** CDW 70246

PRICE DROP!

800-434-4239
www.cdw.com

Circle 68 on reader service card

NT
95

WAR OF THE Windows

NT 4.0 VS. 95

Should you make the move from 95 or 3.1 to NT?

The answer boils down to a basic trade-off: stability and security versus compatibility.

By Scott Spanbauer

TIMES CHANGE. It seems like only yesterday that Windows 95 made its debut with an avalanche of publicity, a Rolling Stones theme song, and midnight lines at Egghead. But as we ring in 1997, Win 95's very *name* shows it's no newcomer.

The formal upgrade to Windows 95 isn't due until mid-1997, when Microsoft plans to roll out a revised edition of the operating system, which may or may not be called Windows 97. As we discuss in "Windows 97: Already Here, Sort Of," this upgrade will consist largely of features offered first as Win 95 add-ons, such as the ability to use the Internet Explorer 4.0 Web browser as an alternative to the standard Windows desktop. ▶

ILLUSTRATIONS BY MATSU

Even now, though, Win 95 faces competition from another, newer member of the Windows family: Windows NT Workstation 4.0. This latest Microsoft desktop operating system may not have hit the market with quite the fanfare that accompanied Windows 95's arrival, but it's still a big event in the computing world.

After all, many Windows 3.1 users—including a large chunk of corporate America—chose to skip Windows 95 altogether. Loath to switch operating systems unless absolutely necessary, these users gambled that Win NT Workstation 4.0 would combine Win 95's much-improved interface with Win NT's traditional virtues—stability and security. And even if you moved to Win 95 long ago, you may wonder if Win NT offers any overwhelming advantages.

To help you select the best version of Windows for your needs, the PC World Test Center put both Windows 95 and the final shipping version of Windows NT Workstation 4.0 through their paces with a broad comparison of features, compatibility, and performance. We found much to like about Win NT—with a few big reservations. It's a technically superior, more secure OS that can keep buggy programs from crashing the whole PC. And unlike earlier NT versions, Win NT 4.0 demands only slightly more of up-to-date PCs than Win 95 does. NT requires a minimum 12MB of RAM, and Microsoft recommends at least a Pentium-60 CPU, though it can run on 486 PCs.

For most users, NT's biggest drawback is its limited hardware and software compatibility. Most of the products we tested ran under it, but there were some important exceptions, and NT's lack of Plug and Play hardware configuration didn't help.

Even in the best of circumstances, trying out a new operating system is a major undertaking, and Windows NT has its unique obstacles. First of all, you need a minimum 110MB of free disk space, which may prove a daunting amount of storage to give up unless you're absolutely sure Win NT is for you. What's more, NT isn't compatible with DOS's and Windows 95's DriveSpace disk compression. If you've compressed all your available disk space, you'll have to remove DriveSpace before installing NT.

Clash of the Features

Best of Win 95

Up-to-date interface: Win 95's look is far from perfect, but much superior to Windows 3.1's.

Highly compatible: Nearly all hardware and software runs well on Win 95; drivers are plentiful.

Better for aging PCs: Unlike NT, Win 95 can run on a 486 system with 8MB of RAM.

Worst of Win 95

So-so security: It's easy to bypass Win 95's password protection.

Retains DOS and Win 3.1 underpinnings: Helps compatibility, but lets buggy drivers and apps do more damage in Win 95.

Dial-up drudgery: Win 95's built-in TCP/IP Dial-up Networking is tough to set up (Win NT's is no better).

Best of Win NT 4.0

The same up-to-date interface: Finally, Win NT users can step up from Program Manager.

Safe and secure: NT offers more crash protection and much better security than Win 95.

Makes a great intranet server: NT's Web, FTP, and gopher tools let you distribute data to your workgroup.

Worst of Win NT 4.0

Compatibility problems: Some apps and peripherals won't work with NT, and there's no Plug and Play.

No easy upgrade to NT from Win 95: After installing NT, you'll need to reinstall apps and reconfigure your PC.

Traveling troubles: Notebook users won't get power management and full PC Card support from NT.

Windows 97

Already Here, Sort Of

DON'T LOOK NOW, but Windows 95 is due for a face-lift. Around mid-1997, Microsoft expects to ship the successor to Windows 95, code-named Memphis and often referred to as Windows 97. The new upgrade will feature a Web-ified interface that blurs the line between desktop navigation and online browsing, while packing new technologies and tweaking established features—all to ease use and fix bugs. Perhaps most surprising, you may be running a good deal of Windows 97 already.

97 in 95. Yes, Microsoft has been quietly but consistently updating Windows 95. The company's Web site boasts many Windows 97 features, from ISDN and infrared communications capabilities, to the beta of the latest Internet Explorer Web browser (it wasn't ready when we went to press, but Microsoft plans to have it up by the time you read this). New PC systems that ship with Win 95 preinstalled have OEM versions of Win 95 with the FAT32 file system and unified Windows 95/NT hardware drivers. Win 97 will put these incremental updates into a shrink-wrapped box, along with late-breaking features and a host of updated drivers.

A Web-like Interface. So is Windows 97 yesterday's news? Hardly. Click Windows 97's new Web View option under the View menu in Windows Explorer, and you'll be using Internet Explorer 4.0 to navigate your hard disk. File icons and the stuffy tree-and-list file system will be gone—replaced, Microsoft promises, with a three-pane visual scheme of hyperlinks and view windows that should give your screen the look and feel of a well-designed Web page. Internet Explorer 4.0 will also be able to give Windows NT 4.0 the same Web-style desktop. Microsoft's Active Desktop will use ActiveX components to put Web browsing, real-time ticker displays, and even television feeds directly onto the desktop. Microsoft says it is "decoupling" this user interface from the operating system to allow frequent surface updates without having to rerelease a whole new version of the OS every time.

Also, Win NT 4.0 requires its own drivers for devices such as video cards and printers; your existing DOS, Win 3.1, or Win 95 drivers won't work. NT comes with a healthy collection of drivers, but you may need to track down others—if they're available at all. Win 95 users face another barrier: Although you can put Win NT on a Win 95 system without wiping out the hard drive, NT doesn't pick up any of Win 95's settings. You'll have to reinstall every program and driver under the new OS.

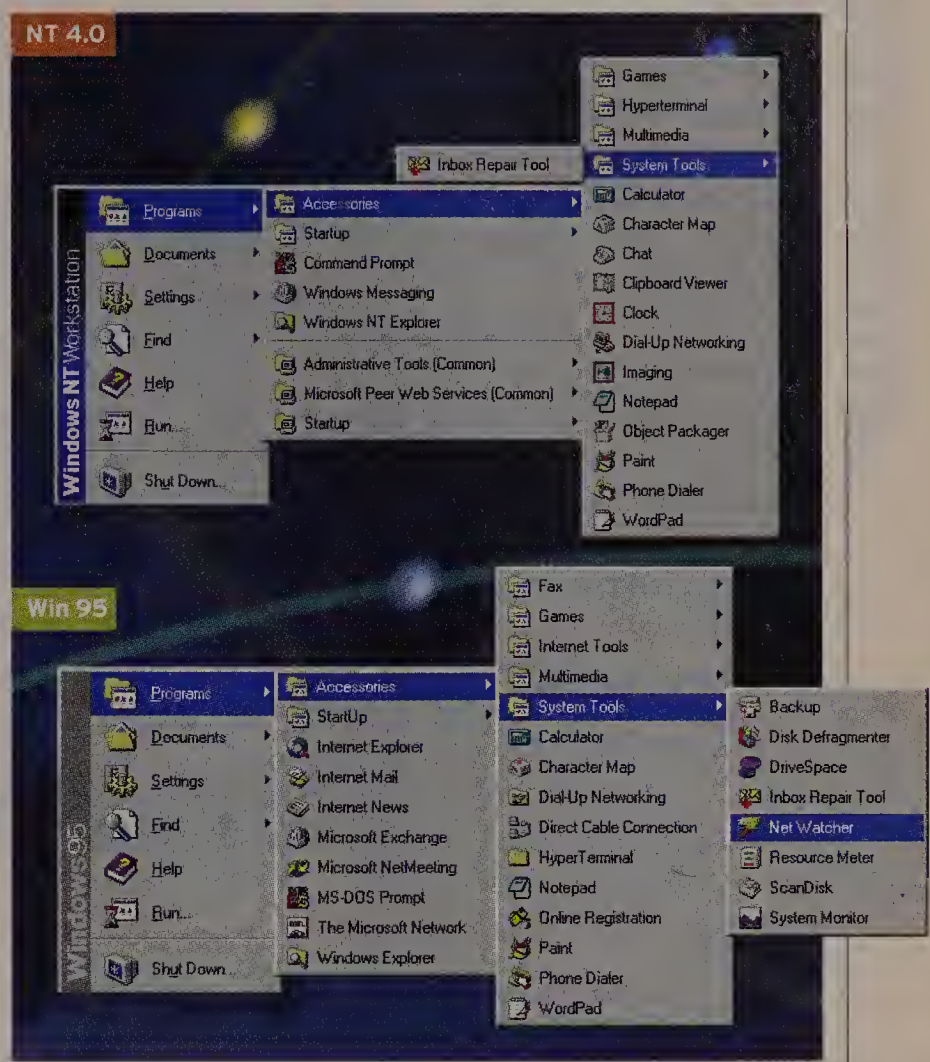
Fortunately, one Windows NT feature does reduce the pain of OS migration—a utility makes it easy to choose between two or even three operating systems each time you start your PC. It's a good idea to retain your old operating system in case a key application turns out to be incompatible with NT. Keeping the old OS available will also let you make the transition to NT gradually.

THE FINAL ANALYSIS

EVEN AFTER YOU KNOW the whole story on the contrasting strengths and weaknesses of Win 95 and Win NT, it's not an easy choice. Read the following detailed reports on both versions' features, compatibility, and performance to see how they compare.

As long as you've got a reasonably fast PC with at least 16MB of RAM, the decision boils down to opting for NT's better system security and stability and its intranet server software; or Windows 95's near-universal hardware and software compatibility, Plug and Play, and advanced support for portable PCs. If you find that everything works with NT except for one key item, you can always choose your old OS from the boot menu when you want to use that item. But Win 95 remains a better choice if you don't have the time or patience to worry about compatibility.

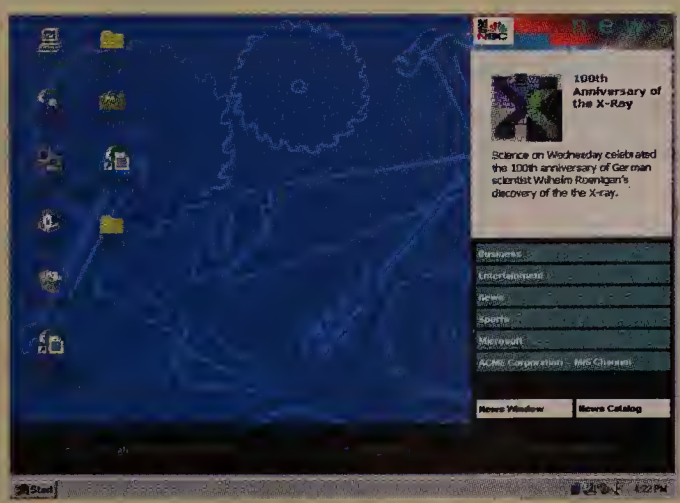
One other point in Win 95's favor: For most users, it's $200 cheaper than NT. That's because anyone with an old version of DOS or Windows qualifies for the $90 Win 95 upgrade, but Win NT's $135 upgrade is available only to users of earlier versions of NT. Everyone else has to pay the full $290 street price. And while Win 95 comes with 90 days of free phone help, NT comes with just two free calls; beyond that, you pay $95 per incident. ▶



WIN NT AND WIN 95 HAVE THE SAME INTERFACE. But look closely, and you'll spot some different features, such as NT's utilities for managing user accounts and intranets.

There will be lots under the hood, too. Windows 97 will feature a reworked file system—the previously mentioned FAT32—that conserves disk space and increases the maximum size of hard disks to 2 terabytes, though Microsoft admits that performance may degrade slightly in some applications. The so-called Windows Driver Model promises to let Windows 95 and Windows NT access peripherals using a single driver; this may help NT's spotty hardware compatibility, while tweaks to the Windows 95 kernel may boost the operating system's performance. The operating system will also include support for Intel's multimedia-savvy MMX additions to the Pentium's instruction set.

New Links. Look for changes in the way application files are linked; these should address problems that occur when a DLL is accidentally deleted and improve Windows 95's problematic uninstall capability. A reworked Control Panel will cut down on icon overload, with wizards to guide users through system settings. Network-oriented enhancements will allow PCs to poll a central server or Web page for new software to download updated components—a step toward the network PC model—as well as improve file synchronization for mobile users. For notebooks, Windows 97 will provide better power management, including the ability to shut down power-hungry PC Cards, and will support the upcoming 32-bit PC Card standard, called CardBus.



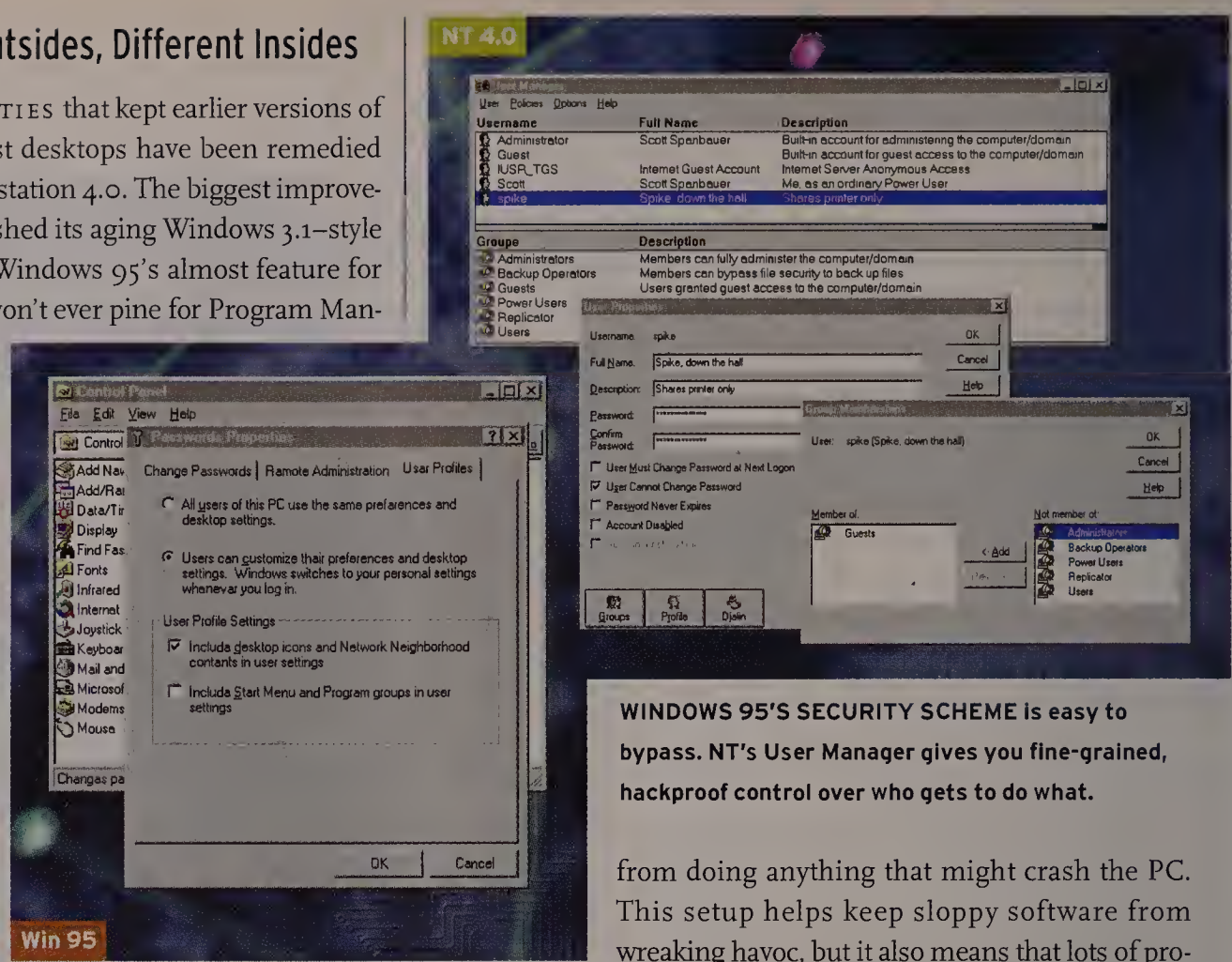
WINDOWS 97 can provide Web-like navigation of local directories, and even real-time Internet news feeds.

Despite the trickle-down updates and bits-and-pieces enhancements, Windows 97, or whatever it ends up being called, promises to be a significant release. The new OS continues to sidle closer to Windows NT, with unified drivers and a shared Web-style interface that may ease things for those using PCs at home and work. But why take our word for it? Much of it is out there for you to try right now.

—Michael Desmond

Features: Same Outsides, Different Insides

MANY OF THE LIABILITIES that kept earlier versions of Windows NT off most desktops have been remedied in Windows NT Workstation 4.0. The biggest improvement: NT has finally shed its aging Windows 3.1–style interface for one that matches Windows 95's almost feature for feature. Most Win 3.1 veterans won't ever pine for Program Manager, which both NT and Win 95 replace with the sleeker, more flexible Start menu and Taskbar, along with a more customizable work environment. Windows NT 4.0 also has Win 95 tools such as the Briefcase file-synchronization utility, the Exchange e-mail client (which Microsoft is renaming Windows Messaging), and the HyperTerminal communications program. Unlike Win 95, NT 4.0 ships without fax software. At press time, however, Microsoft had put a free beta version of a fax program for NT on its Web site (http://www.microsoft.com/ntworkstation/fax.htm).



WINDOWS 95'S SECURITY SCHEME is easy to bypass. NT's User Manager gives you fine-grained, hackproof control over who gets to do what.

APPEARANCES CAN BE DECEIVING

WINDOWS 95 AND Win NT 4.0 may look like twins, but substantial differences lurk under the hood. Windows 95 is nominally a 32-bit operating system, but it's retained some code from its 16-bit ancestors, MS-DOS and Windows 3.1. That code makes it compatible with the vast majority of hardware and with most DOS and Windows programs. Unfortunately, it also means that Win 95 has DOS's prehistoric, insecure FAT file system and is prone to some of Win 3.1's mysterious crashes and instabilities.

Windows NT, by contrast, was designed as a fully 32-bit operating system from the ground up. Besides running on garden-variety PCs, it takes advantage of multiprocessor systems and is available for several types of RISC workstations. Also unlike Win 95, there is a version designed to run large local area networks: Windows NT Server 4.0, which competes against such network operating systems as NetWare.

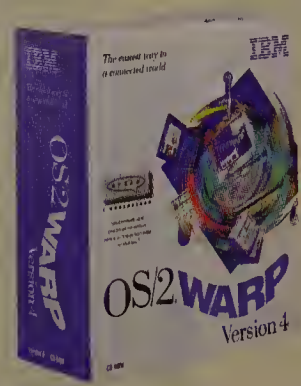
NT also goes several steps beyond Win 95 to prevent software crashes and to keep applications that do crash from bringing down other apps or the OS itself. More than Win 95, it insists that drivers and other software access the display, hard drive, and various components only through the OS's official procedures, so it can monitor what they're up to and prevent them from doing anything that might crash the PC. This setup helps keep sloppy software from wreaking havoc, but it also means that lots of programs, especially utilities and games, won't run with NT (see the Compatibility section for the gory details).

Both Win 95 and Win NT isolate 16-bit Windows and DOS applications into an area of RAM separate from 32-bit programs, so if one 16-bit app crashes, it's unlikely to take the OS with it (each 32-bit program is also segregated from every other). But NT has the capa-

OS/2 Warp

New Look, New Features

SELECTING AN operating system for your PC hasn't been reduced to choosing between Microsoft products—yet. Despite years of speculation that OS/2's death was imminent, IBM continues to upgrade its 32-bit operating system. OS/2 Warp 4 fixes some of the limitations of earlier OS/2 releases: Thanks in part to additional drivers, installation is much easier, and this new edition has a more colorful look, with better online help and a new feature called WarpCenter—a powerful, customizable equivalent of Win 95's and Win NT's Taskbar.



Warp 4's biggest technological innovation is its built-in voice recognition: You can speak into a microphone to navigate the OS/2 desktop, or even dictate documents into programs such as word processors, with surprisingly accurate results. Unlike Windows, Warp also has built-in Java, which lets you run Java applets without launching a Web browser.

OS/2 Warp 4 is an exciting upgrade for current fans of OS/2, but there's a flashing stoplight for Windows users: Although Warp runs DOS, Win 3.1, and native 32-bit OS/2 apps, it can't run 32-bit Win 95 or NT apps. For a full review of Warp 4, visit PC World Online (http://www.pcworld.com/warp).

OS/2 Warp 4

List price: $249, upgrade $149; IBM, 800/426-2255, http://www.software.ibm.com

bility of running each 16-bit app in its own address space, so one poorly behaved 16-bit program can't crash another.

None of this should suggest that Win 95 is a basically shaky OS. In research for this article, we spent hundreds of hours pounding on PCs, peripherals, and software and never had a crash with Win NT *or* Win 95—a far cry from the legendary unreliability of Win 3.1.

That doesn't mean NT's extra emphasis on stability isn't a big plus for many users, especially those who simply can't afford to risk damage to, say, a vital customer database. Think of it as the equivalent of automotive safety features such as antilock brakes and safety-cage construction. With or without them, chances are you'll never total your car—but it's good to know they're there just in case.

LOCK UP YOUR DATA

CORPORATE users are likely to want an OS that can protect sensitive data from prying eyes or accidental deletion, and here NT offers substantial advantages over Win 95. The latter's security looks good on the surface—it can be set up so that you must log in with a user name and password, and you can password-protect shared drives. But it's more bark than bite: Anyone who sits down at your PC can create a new account and password, or bypass security by pressing <Esc> at the log-in screen or booting in Safe mode.

Win NT's security is much more airtight—by default, only the system's administrator can create accounts, and you can't bypass security. Additionally, NT lets you specify who has access to disks, directories, and individual files, whether the users are sitting at the keyboard or logged in over the network. To get file-level security, you need to install NT using its NTFS file system, which provides much more security than Win 95's FAT, the aging file system that dates back to the dawn of MS-DOS. (Alternatively, you can install NT using FAT, which lets you place NT on a single drive partition along with DOS, Win 3.1, or Win 95.)

Unlike Windows 95, Win NT Workstation 4.0 also comes with tools that let anyone who's comfortable with the basics of World Wide Web authoring create an *intranet*—an internal corporate information system built around Internet software such as Web browsers and servers. It provides this capability through Peer Web Services, a suite of Web, FTP, and gopher servers. With these utilities, it's surprisingly quick and easy to configure a PC to deliver corporate data that networked users can view with any Web browser. (At press time, Microsoft had put a personal Web server for Windows 95 on its Web site at http://www.microsoft.com/ie/download/ieadd.thm; it's free but is not included with Win 95 itself.)

One little catch with NT's Peer Web Services: Your data is visible only to local network users, not the Internet at large. If you want to create a Web site that's available to the whole world, you have to use another Web server, such as Microsoft's free IIS server. You'll also have to upgrade to the much costlier Win NT Server 4.0, since Win NT Workstation's license limits you to ten users at any one time, including Web visitors.

PRODUCT COMPARISON

	FEATURES	Windows 95	Win NT Workstation 4.0
Standard	Street price	$180	$290
	Upgrade street price	$90	$135
	Recommended mininum processor	486DX	Pentium-60
	Recommended mininum RAM/disk space	8MB/40MB	16MB/120MB
	File systems supported	FAT, FAT32	FAT, NTFS
	Applications supported	MS-DOS, 16-bit Windows, 32-bit Windows	MS-DOS, 16-bit Windows, 32-bit Windows
	Supports Plug and Play	●	○
	Supports Advanced Power Management	●	○
Included utilities and applications	Disk compression	●	●[1]
	Web browser	○[2]	●
	Intranet Web server	○[2]	●
	E-mail	●	●
	Fax	●	○[2]
	Backup	●	●
	Peer-to-peer networking	●	●
	Server-based networking	○	●
	Dial-up remote access server	○	●
Service and support	Free support (days)/toll free	90/○	○[3]/○
	Weekend support	○	●
	Weekday support (hours)	12	24
	Fax/online support	●/●	●/●

● Yes ○ No

[1] Works only with NTFS and is not compatible with Win 95's DriveSpace.

[2] Free at Microsoft Web site. [3] Two free calls for setup assistance.

NT'S MISSING FEATURES

SO MUCH for major features unique to Windows NT. The bad news is that Windows NT lacks Windows 95's Plug and Play hardware installation. Plug and Play isn't perfect, but when it works, it can make upgrading or installing new hardware on your system a breeze. Win NT will probably find your hard disks, CD-ROM drives, SCSI devices, and mouse on its own, but that's it. Installing other devices, such as sound boards, happens much as it does under Win 3.1—you must locate a driver (from the Windows NT CD-ROM or the manufacturer's disk or online site) and install it yourself. You're also more likely to need to fiddle with IRQs, interrupts, and other unpleasant realities of hardware configuration, and that's assuming an NT driver exists at all—read on for what we discovered about driver availability.

Notebook users are worse off, because NT lacks Win 95's support for hot-swapping PC Card devices (part of Plug and Play) and Advanced Power Management. Some notebook manufacturers plan to write their own Win NT PC Card and APM extensions. But if your system's vendor isn't so enterprising, you may have to wait for Win NT 5.0 to get full-fledged support for portable computing. Until then, be prepared to reboot when you exchange PC Cards, and your battery life may be brief at best.

NO PERFECT WINDOWS

ULTIMATELY, NEITHER version of Windows has a clear advantage from a features standpoint. Too bad Microsoft hasn't come up with a version that offers everything: Win 95's Plug and Play and good support for mobile PCs, *and* NT's better security and stability. At least both versions finally sport the same interface, so ease of use isn't a factor when choosing between them. ▶

Compatibility: Win 95's Strength, Win NT's Weakness

WIN NT's lack of Plug and Play is only one issue that helps determine how easy—or hard—it is to get it running on a given PC. The bigger issue is whether the various items that make up your system will work with NT at all. To test compatibility, we devised four representative desktop systems, as well as a portable setup built around a notebook and PC Card peripherals (see "Accident Report," below). With just the essentials installed, we loaded the OS, then installed a suite of peripherals and programs one at a time.

Windows 95 worked with all these products much more smoothly than NT did—no big surprise there. Most new apps are designed for Win 95, and it runs the vast majority of old DOS and 16-bit Windows applications well. Finding Win 95 hardware drivers is rarely hard, and for the most part, its Plug and Play eases setup pains, although it still can't resolve every conflict.

Win NT is another story. It isn't based on the MS-DOS core code and uses a different driver architecture than Win 3.1 and 95, so the only way it will work with a particular piece of hardware is if someone has written a driver specifically for Windows NT. Consequently, a lot of hardware just isn't compatible. Seven of the 31 devices we tried failed to operate; the OS handled basic items like drives and video cards easily, but we often had trouble with other peripherals such as sound cards, tape drives, and scanners.

Before you even consider moving a PC to Windows NT, check Microsoft's guide to hardware it has successfully tested with NT (http://www.microsoft.com/isapi/hwtest/hsearchn4.idc). ▶

Accident Report

What Went Wrong With Windows NT

Most hardware and software we tested with Windows NT worked well, but we had big problems with some popular products. Here's the lowdown on the major snafus we encountered in our five test configurations and what—if anything—can be done. For full results of our Win 95 and Win NT compatibility tests, visit PC World Online at http://www.pcworld.com/winreview.

	Overall Compatibility	Product	What went wrong	Can anything be done about it?
Office system	fair	HP Colorado T1000E parallel port tape backup drive	Win NT didn't recognize the drive during installation.	HP has no plans for a Win NT version.
		Logitech PageScan Color	No Win NT driver available.	Logitech has no plans for an NT-compatible version.
		Lotus SmartSuite 96	Freelance Graphics wouldn't install; Approach intermittently froze up or displayed error messages.	SmartSuite 97, due in early 1997, will be designed to run with both Win 95 and Win NT.
		PKZip for Windows 2.01	16-bit app produced error messages when dealing with folders with long names.	32-bit Win 95 and Win NT version that handles long file names is due by end of 1996. Archrival WinZip is already available in 32-bit NT-compatible version.
Multimedia/game system	poor	Advanced Gravis Ultra Sound PnP sound card	No Win NT driver available.	Advanced Gravis is working on a Win NT driver.
		Doom (DOS version)	No sound from SoundBlaster card; game requires the SoundBlaster to use IRQ 2, 5, or 7, but Win NT lets the card use only IRQ 10.	Configure your PC to dual-boot between Win NT and DOS—an approach every game player should take when moving to NT.
		Softkey Compton's Interactive Encyclopedia	No text visible—displays empty boxes instead.	Softkey was surprised to hear of compatibility problems with Win NT and unable to provide a solution.
Graphics system	good	HP ScanJet 4P	No Win NT driver available.	HP plans to provide Win NT-compatible scanner drivers sometime in 1997.
		Iomega Zip drive	Win NT didn't recognize that we'd attached the drive to the system.	Drive worked properly when we installed it as a SCSI device using Win NT's Control Panel.
Communications system	fair	Symantec CommSuite 7.0 for Windows 95	This fax, terminal emulation, and Web browser bundle is not compatible with Win NT 4.0.	A Win NT version of the WinFax app is planned for early 1997. Microsoft includes a terminal program with NT and offers a free fax app on its Web site.
		Quarterdeck Procomm Plus 3.0	We got it to run only by disabling its error correction mode.	Quarterdeck plans to release Win NT-specific edition in February.
Mobile system	poor	PC Card devices in general	Win NT does not support hot swapping of cards; you must shut down the system before changing them.	Microsoft plans better PC Card support for Windows NT 5.0; third-party vendors are working on interim solutions.
		PC Card hard drives in general	Win NT may assign the PC Card drive as drive C:, causing a notebook's internal drive to become unavailable.	Microsoft's Web site explains how to reassign the drive letters (http://www.microsoft.com/kb/bussys/winnt/q153619.htm).
		Integral Viper 340 PC Card hard drive	Didn't work in our test notebook due to an incompatibility between Win NT and the notebook's Texas Instruments chip set.	Microsoft is attempting to resolve the problem.
		New Media .WAV Jammer PC card sound adapter	No Win NT driver available.	New Media is working on a Win NT driver.

THE CLEAR CHOICE

EDITORS' CHOICE

When it comes to buying a monitor, choose a winner. Choose a ViewSonic®.

Consider, for example, the Optiquest V775 Value Line Monitor by ViewSonic. We set out to prove that a 17″ (16.0″ viewable) monitor can deliver high performance (0.26mm dot pitch and 1,600 x 1,200 maximum resolution), a powerful feature set, and full compatibility with PCs and Macs®—all at an affordable price.

We succeeded. After rigorous tests and evaluations, the editors of PC Magazine wrote that the V775 is *"a competitive monitor that offers bright, rich colors and sharp images."*

PC MAGAZINE EDITORS' CHOICE

Furthermore, it *"delivers a lot of value, and merits an Editors' Choice."*

Of course you can also pick from one of our other five Optiquest® or fifteen ViewSonic monitors, and know you'll always pick a winner.

ViewSonic®

See The Difference!™

20480 Business Parkway, Walnut, CA 91789
(800) 888-8583 • (909) 869-7976; Agent Code 7507
Fax (909) 869-7958
FaxSonic (909) 869-7318 (24-hour fax on demand)
Internet: www.viewsonic.com

Corporate names and trademarks stated herein are property of their respective compani
Specifications subject to change without notice.
© ViewSonic Corporation 1996, 1997. All rights reserved.

Circle 260 on reader service card

Most vendors we contacted with products not yet compatible with NT have NT drivers in development, but there are some prominent exceptions, including Logitech's PageScan Color scanner and Hewlett-Packard's T1000E tape drive.

THE SOFTWARE SITUATION

IN THE LONG RUN, virtually all new business-oriented Win 95 applications will likely also run under NT. Microsoft is phasing out the Designed for Windows 95 logo and replacing it with a Designed for Windows NT and Windows 95 one; products that bear the new logo will be guaranteed to work with both versions. (Most apps that have the Designed for Windows 95 logo are supposed to run under NT, but the rules are far from strict.)

Unfortunately, Microsoft doesn't maintain a list of software that has been found to operate properly with NT, as it does with hardware. Our tests show that most programs likely to fail are in distinct categories. Win 3.1 and Win 95 utilities will almost certainly give NT fits: Because NT uses different schemes for memory and disk access than Win 95 does, utilities must be designed with it in mind; NT versions of such major utilities as Symantec's Norton Utilities and McAfee's VirusScan are available. Communications programs, too, often fail under NT because they don't interact with your PC's hardware the way NT demands.

Games are another sticky area. DOS games usually achieve fast performance by writing directly to the PC's display and other hardware—a serious NT no-no—so you can forget about playing most of them with NT. Mech Warrior 2 stood a better chance of working, since it was designed for Win 95. It conked out in our tests, however, because it uses four of Microsoft's five DirectX add-ins; as we went to press, NT still supported only two of them.

What's the final word on Win NT's compatibility? An optimist would note that it worked with most of the products we tried; a pessimist would zero in on the well-known ones it couldn't handle. You'll need to examine your PC's configuration, check Microsoft's hardware compatibility list, and talk to your software's vendors before you'll have a feel for whether you're likely to have problems when running NT. ▶

TEST REPORT

Performance: A Few Big Differences

Some programs strongly favored one version of Windows, but overall scores were neck and neck.

HOW WE TEST Tests were conducted on an NEC PowerMate Pentium-100 with 16MB of RAM, a 1.2GB EIDE hard disk, and a Diamond Stealth 64 graphics board; on the same system with 32MB of RAM; and on a Micron ClientPro Pentium Pro-200 with 32MB of RAM, a 2.1GB Wide SCSI hard disk, and a Number Nine Imagine2 graphics board. All tests were performed by hand; timing stopped when we regained control of the cursor. **WORD 7.0:** We loaded a 5MB document; tasks included searching and replacing, printing, and saving. **EXCEL 7.0:** We loaded a 13.5MB spreadsheet; tasks included sorting, subtotaling, and saving. **1-2-3 release 5.01:** We loaded a 43MB spreadsheet; tasks included sorting, searching and replacing, and saving. **PARADOX 7:** Using a 47MB database, we performed tasks including querying 3 joined tables, adding an index, creating a report, and rebuilding. **FRAMEMAKER 5:** Tasks included flowing text, formatting, searching and replacing, and printing. **AUTOCAD release 13:** We loaded a 6MB data file; tasks included creating a 3-D polar array, rendering an image, and saving. **EXTREME 3D 1.0:** We imported a 2MB DXF file and performed tasks including rendering to screen, rendering to an AVI animation, and exporting.

A perfect 10 on the feature scale.

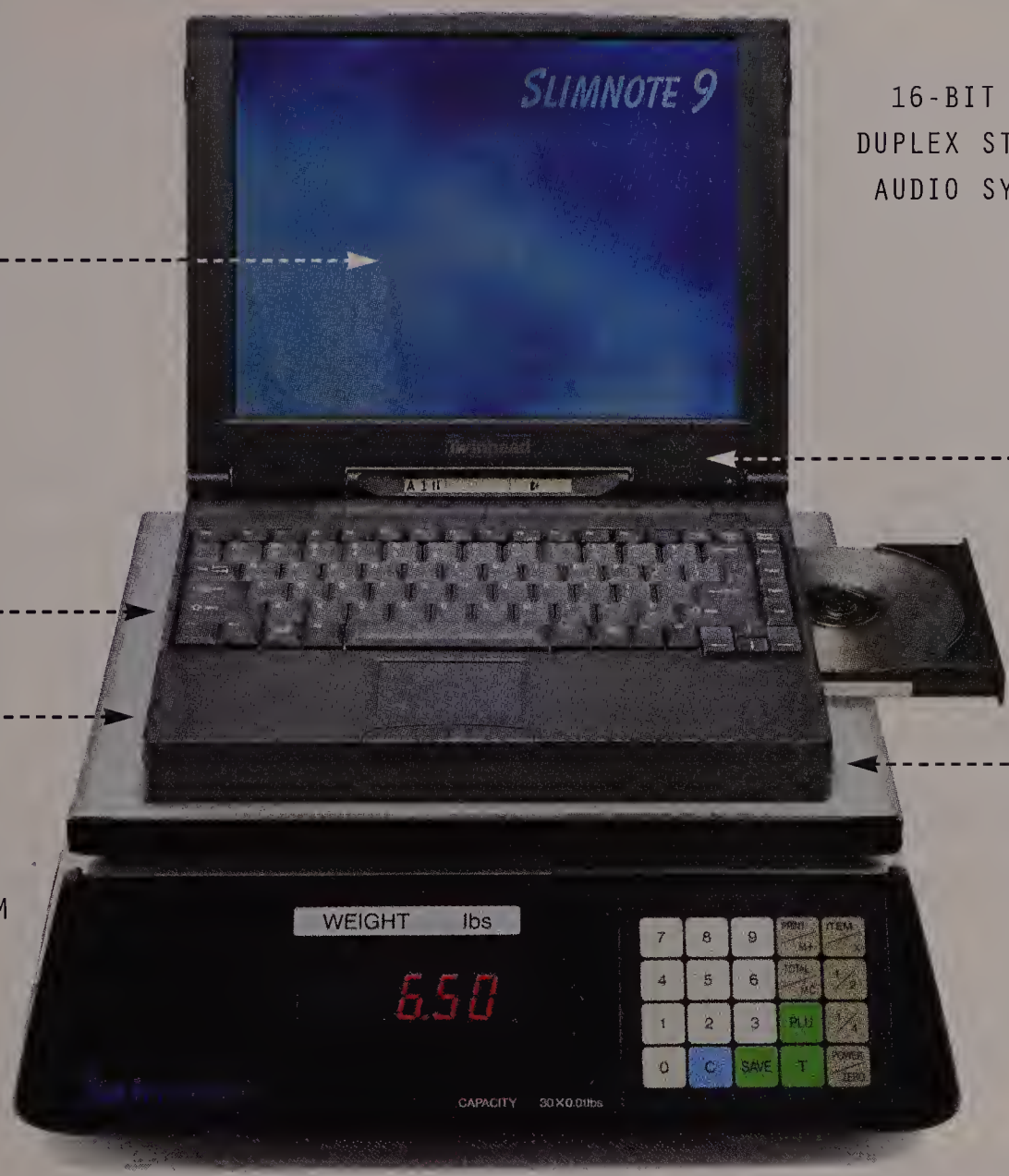
12.1" SUPER VGA ACTIVE MATRIX (11.3" DUAL SCAN OPTIONAL) WITH 64K COLORS

16-BIT FULL DUPLEX STEREO AUDIO SYSTEM

INTEGRATED 10X CD-ROM DRIVE

UP TO 150 MHZ INTEL PENTIUM™ PROCESSOR

HARD DRIVES UP TO 2.1 GB



OPTIONAL INTERNAL 33.6KBPS FAX/MODEM

INTEGRATED 1.44MB FLOPPY DISK DRIVE

6.5 POUNDS

LESS THAN 2" THICK

LONG LIFE BATTERY

Only 6.5 lbs. on a regular scale.

For people who still believe that full-on multimedia notebooks will break your back and budget, Twinhead proudly presents the exciting new Slimnote 9.

For more than a decade, Twinhead has been building computers for some of the biggest names in the business. The new Slimnote 9 is Twinhead's tenth generation mobile system; design and manufacturing experience others can't match. If notebooks are what you are into, Twinhead is truly Two Steps Ahead.™ Plus, every Slimnote is backed by Twinhead's highly acclaimed ExpressCare48 Service program.

- Only 6.5 pounds, including CD, Floppy & Battery
- 10X CD-ROM drive and floppy co-exist
- Long battery life
- 64-bit graphics accelerator with 2Mb of video memory
- ZV-enabled PC Card Slot
- User-installable memory up to 64Mb
- Optional 33.6Kbps internal fax/modem

Call Twinhead today for more information!

Two steps ahead™
Twinhead

West – Phone: 800-995-8946 • East – Phone: 800-552-8946 • Fax: 408-945-1080
www.twinhead.com

intel inside pentium PROCESSOR

Copyright ©, 1996, Twinhead Corporation, All Rights Reserved. Reproduction without the express written permission of Twinhead Corporation is prohibited. All specifications and configurations subject to change without notice. Twinhead, the Twinhead logo and Slimnote are registered trademarks of Twinhead Corporation. Intel, the Intel Inside Logo and Pentium are registered trademarks of Intel Corporation. All other trademarks acknowledged.

Circle 240 on reader service card

Performance: No Overall Winner

WHEN WE SET OUT TO COMPARE how quickly Win 95 and Win NT 4.0 perform the same tasks, we chose sensible real-world hardware configurations, rather than Microsoft's overly optimistic minimum requirements. We tested each OS on a Pentium-100 PC with 16MB of RAM, again on the same system with 32MB of RAM, and on a 200-MHz Pentium Pro PC with 32MB of RAM. We performed tasks using workaday business applications (Word, Excel, 1-2-3, and Paradox) and high-end apps (AutoCAD, FrameMaker, and Macromedia's Extreme 3D graphics package). To see how each OS dealt with demanding tasks, we used large files, such as a 13.5MB Excel spreadsheet and a 6MB AutoCAD design file.

Neither version of Windows emerged as the clear performance champ. Each ran certain applications much faster than the other. Excel, for instance, ran up to 58 percent quicker with Win 95 than with Win NT, and FrameMaker was always at least *twice* as fast under NT than under Win 95, regardless of system configuration. But in many cases the difference for a particular app was around 15 percent or less—virtually unnoticeable in everyday use.

NT's pure 32-bit architecture helps with demanding multitasking applications.

And the total time it took for the two Windows to finish all the tests was remarkably similar on a given hardware configuration.

Conventional wisdom says Win NT demands a more potent PC than Win 95 for decent performance. In testing both versions on a Pentium-100 PC with 16MB of RAM, we found this rule may be outdated. Word, Excel, 1-2-3, and Paradox were faster with Win 95 than with NT, but only by 3 percent to 16 percent. With AutoCAD and Extreme 3D, NT actually squeaked past Win 95; with FrameMaker it eclipsed Win 95 by a whopping 126 percent.

Bumping the PC up to 32MB of RAM affected results in different ways, depending on the program. In the case of Excel and AutoCAD, Win 95 benefited more from the additional RAM than NT did. On the 32MB machine, Excel was about a third faster under Win 95 than NT, and AutoCAD about 21 percent faster; Word ran about a third faster under NT than under Win 95 in this setup. NT's edge with FrameMaker got even more lopsided.

If you're struck by how much faster both Win 95 and NT finished our tests with 32MB of RAM than with 16MB, bear in mind that we used large files that tended to force the 16MB system to juggle data to the hard disk. The most startling example: With Win 95, sorting the 13.5MB spreadsheet—one of the tasks we did with Excel—took an hour and 21 minutes with 16MB of RAM, while the same sort with 32MB of RAM took just 39 *seconds*. If you work with smaller files, you'll probably see a much smaller speed gain with 32MB of RAM than we found here.

Conventional wisdom also says that NT is the logical version of Windows to run on a Pentium Pro PC, since that CPU favors purely 32-bit code (like NT's) to Win 95's mix of 16- and 32-bit architecture. But on our Pentium Pro-200 system with 32MB of RAM, Win 95 outperformed NT with Excel (58 percent faster under Win 95), Paradox (17 percent faster), and AutoCAD (29 percent faster). NT won out with Word (14 percent faster) and once again blazed through the FrameMaker tests. The other apps ran at about the same speed on both operating systems.

These results refer to NT with the FAT file system. We also tested NT with its NTFS file system, which lets it protect data file by file. This scheme exacts a price in performance: Win NT with NTFS was the slowest OS overall on all three PC configurations we tested, and in most cases was the slowest for each individual program. The difference in speed compared to NT with FAT usually wasn't huge—often a negligible 1 or 2 percentage points, and rarely more than 15 percent. The big exception was Word, which was always at least 72 percent slower with NTFS than with FAT.

AN ADVANTAGE IN MULTITASKING

POWER USERS SHOULD NOTE that NT's pure 32-bit design gives it an advantage in high-intensity multitasking. When we tried simple multitasking of several apps at once, neither version of Windows was clearly superior. But then we tried to push both operating systems to their limit with as many calculation-intensive tasks at once as possible, including a database query in Paradox, a large worksheet sort in 1-2-3, and a 3-D scene rendering in AutoCAD. With Win 95, our PC quickly became so preoccupied with the background jobs that just navigating around the desktop with the mouse pointer became very sluggish. With NT, however, the desktop remained snappy despite the background tasks.

All in all, we can only conclude that neither OS has a meaningful natural performance edge on any of the PC setups we tested—it all depends on the specific apps you use. We mentioned all the major speed differences above, and you should consider them if you spend most of your workday in one of the affected apps. If you divide your day between a variety of programs, though, one might run a bit slowly under the version of Windows you use, but another will probably be brisk enough to compensate. Unless you perform heavy-duty multitasking, we don't think you're likely to see an *overall* difference in performance between the two operating systems on a reasonably well equipped PC.

For more Windows tips and news, join PC World *editors on our message board at http://www.pcworld.com/win_talk/. Scott Spanbauer is a* PC World *contributing editor. Testing performed by Ulrike Diehlmann, Jeffrey Kuta, Kevin Mitchell, Mike Salayko, and Susan Silvius.* ■

Where to Buy

Windows 95
Street price: $180, upgrade $90
READER SERVICE NO. 786

Windows NT Workstation 4.0
Street price: $290, upgrade $135
(NT users only)
READER SERVICE NO. 787

Microsoft Corp., 800/426-9400, http://www.microsoft.com

MORE PC
LESS MONEY

For the Holidays!

Models with listed price include:

nced Architecture based on Intel® 430HX PCIset
ATX Design for maximum reliability and performance
Class, Ultra Fast 64-bit 3D Video based on the ATi 264GT2 set,
MB SGRAM upgradeable to 4MB SGRAM, bundled with 3D Demo CD
bit Creative Labs Plug & Play Sound, with Wave
hesis Table Upgrade Option
ports EDO, ECC, Parity, or Standard RAM from 8MB up to 256MB
nced Power Management Architecture Design
Performance MPEG & CDi Full Screen, Full Motion Movie Playback
200 MHz Clock Speed; Plug & Play Flash BIOS; Super I/O Design
emely high processor upgradeability architecture
dows 95 Pre-Installed, with CD; Lotus Smart Suite 96, with CD
dled with CLR Windows 95 PS/2 Keyboard,
with CLR PS/2 Ergonomic Mouse
-free Ergonomic Mid-Tower Case Enclosure
e speakers included with every system

Infinity PT5-A133

Hz Pentium® Processor, 16 MB EDO RAM,
B Pipeline Burst Cache, 2.1 GB E-IDE HD,
DE CD-ROM Drive, 15" CLR VisionPro
Monitor, MPR-II Low Radiation,
x1024 N.I., 0.28mm DP, On-Screen Digital
y with 15 adjustment settings, Anti-Static,
Non-Glare, Plug & Play . . . . . $ 1695
66MHz Pentium® Processor . . . . . $ 1945
00MHz Pentium® Processor . . . . . $ 2045

Infinity PT5-A200

MHz Pentium® Processor, 32 MB EDO RAM,
B Pipeline Burst Cache, 3.2 GB E-IDE HD,
-IDE CD-ROM Drive, 17" Color Monitor,
II Low Radiation, 0.28mm DP . . . . . $ 2595

Infinity PT6-A200

MHz Pentium® Pro Processor, Based on
X PCIset, 256 KB Internal Cache,
B Burst EDO RAM, 3.2 GB E-IDE HD,
-IDE CD-ROM Drive, 17" Color Monitor,
II Low Radiation, 0.28mm DP,
ows NT Workstation Pre-Installed, with CD . . . . . $ 3095
512 KB Internal L2 Cache . . . . . $ 3695

tions (all systems)

o 17" Monitor Upgrade . . . . . $ 350
US Robotics Data/Fax Modem . . . . . $ 99
MB EDO RAM Upgrade . . . . . call
Options . . . . . call
it Video Options . . . . . call

e are Flexible in System Configurations!

- Latest Technology
- Top Performance
- Best Price
- Aesthetically Detailed Design
- Ease of Access to Internal Components
- Simple Cost-Effective Upgrade
- 3 Year Limited Warranty
- 30 Day Money Back Guarantee

«The CLR Infinity delivers. Top-flight performance at a good price.»
PC Magazine, January 23, 1996

«... it delivers an enviable combination of quality, performance, and price, and we recomend it without reservation.»
BEST BUY AWARD
COMPUTER BUYER'S GUIDE AND HANDBOOK
June 1996

«The CLR Infinity PT5-A200 is what some might call their "dream machine", powerful, fast, sleek, and all you need in a multimedia solution.»
COMPUTER BUYER'S GUIDE AND HANDBOOK
October 1996

chnology without compromise®

mpuLink Research, Inc.
-9 Commerce Parkway Miramar, FL 33025
954-450-7061. Fax: 954-450-7062. BBS: 954-450-8056

LL NOW TO ORDER

-800-622-5592

ternet http://www.clrusa.com

- Fri 9am to 9pm EST
ness Lease Available

Circle 53 on reader service card

mpuLink Research, Inc. All prices and specifications are subject to change without notice. CompuLink Research, Inc. cannot be held responsible for omissions/errors in typography or photography. Your Connection to Infinity and Technology without omise and the CLR logo are trademarks of CompuLink Research, Inc. Intel and Intel inside are registered trademarks of Intel Corporation. Microsoft is a registered trademark, and Windows, Windows95 and Windows/NT and the Windows logos are arks of Microsoft Corporation. All other trademarks or tradenames are the property of the respective companies. 30-day money back guarantee does not include original or return shipping and handling charges, and applies only to CompuLink brand products, and begins from the date of shipment. All returns require a Return Authorization Number and must be shipped in the original packaging and condition, prepaid and insured.

best ways to manage your mOney

How to get a grip on your finances: Top tips, products, and Web sites.

BY ERIC TYSON

136 Getting Organized
137 Paying Bills
140 Expense Tracking and Budgeting
142 Taming Taxes
144 Investing
150 Retirement Planning

LYNN BRENTON USES QUICKEN to handle her personal finances, and overall she's very happy with the program. But the Decatur, Georgia–based computer specialist for a lighting fixture manufacturer knows the program's weaknesses: "I can't figure out how to budget with Quicken, so I still use Excel for that."

Handling your personal finances can be a daunting task, one that seems made to order for a personal computer. After all, your PC can track when bills need to be paid and even pay them via modem, track expenses and help you create a budget, and ease all the painful parts about pay-

ILLUSTRATIONS BY GERARD DUBOIS

ing taxes except, of course, actually paying them. Online services and special software can help you make and track investments, and plan for that ultimate vacation—your retirement.

But a PC won't solve your money problems, and may even cause a few new ones. Finance programs aren't as easy to use as their vendors want you to believe, especially if you know little about financial basics. If you fall months behind in tracking your spending, you'll get nothing out of it but guilt; on the other hand, tracking every penny can become time-wasting and unproductive, especially if you don't make wise use of your newly acquired information.

MICHAEL DOUGHERTY USES QUICKEN to fine-tune his finances and run Kindermusik, a small business that helps kids find music tutors.

In the following pages, I'll show you the best strategies for managing your money on your PC. You'll learn about the hidden features and pitfalls of the popular programs, how to find where your money is going, and which investment sites on the World Wide Web are the best. You paid a lot for your computer, and it's time you made it pay off.

GETTING ORGANIZED

BEFORE YOU CAN USE YOUR COMPUTER to get a handle on your finances, you need to start using it to record your assets, liabilities, and transactions.

Get a checkbook program. The best tools for this job are checkbook programs like Quicken, Microsoft Money, and Managing Your Money. (Disclosure: I was one of several experts paid by Intuit to write online financial advice for the 1996 Quicken Deluxe CD-ROM.) These programs go beyond managing checking accounts and try to be sophisticated electronic financial advisers. They don't always succeed. Elizabeth Nesbitt of Fort Wayne, Indiana, a mostly satisfied Quicken user since 1990, finds that in some respects, Quicken is "not sophisticated at all. For instance, it can't compare 15-year with 30-year mortgages." (See the sidebar "Quicken or Money?")

Set it up. When you first use a checkbook program, it walks you through the task of setting up your "accounts." Set up one for important bank accounts, credit cards, loans, and investments. The program will ask you a lot of questions, so have your bank statements, credit card bills, and other financial papers handy before you start.

Save your receipts. Set aside time every month to enter all your transactions—checks you've written, checks you've deposited, ATM withdrawals, credit card charges, and so on—into your checkbook program (see the tip "Entering your Paycheck" for details on handling this important transaction). Be extra diligent about credit card transactions; they can get out of hand.

Create logical categories. As you enter transactions, you'll be asked to assign each one to a category, such as Groceries, Entertainment, or Household. Later, you'll be able to see how much you've spent in each cate-

Tips for Getting Organized

Splitting Transactions

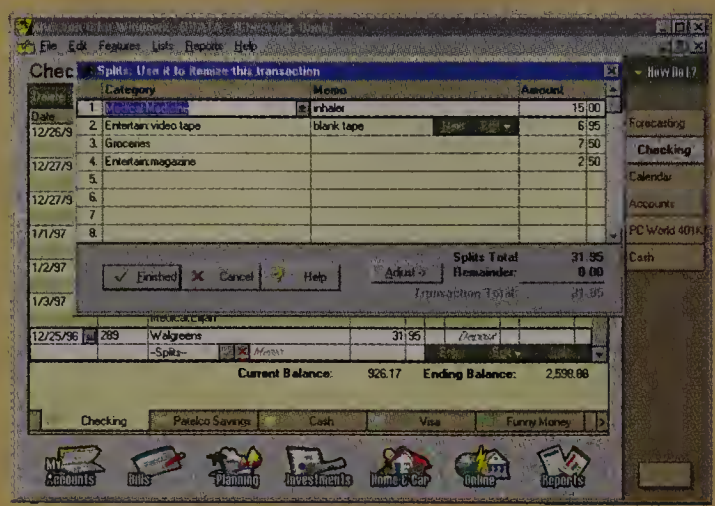
A CHECK TO THE SUPERMARKET can easily be categorized as Groceries, and a charge at the gas station as Car:Fuel. But under what category do you place a single charge at the drugstore for a magazine and prescription medicine? You split it between two categories.

In either Quicken or Money, when you get to the Category field, click the *Splits* button. Enter the categories and amounts in the resulting dialog box.

Entering Your Paycheck

YOUR CHECKBOOK program needs more information about your paycheck than how much money you've deposited—at least if it's going to give you accurate information down the line. You have to tell it what has been deducted, as well.

In Quicken, enter the paycheck as a split transaction as described in "Splitting Transactions." In the first split line, enter the gross pay, and in the lines that follow, enter the deductions (taxes, 401(k), and so forth), making sure to use negative amounts.



IF A PURCHASE IS FOR ITEMS in more than one category, use Quicken's (or Money's) Split feature.

Money gives you a niftier way to handle this. Click the *Go To* button, select *Payment Calendar,* then click the *New* button. In the resulting wizard, select the Deposit option and click Next. In the category field, type **paycheck.** Money's Paycheck Wizard holds your hand through the process of entering the information and asks you whether you want to track 401(k) or other pretax or posttax deductions. If you say you do, it sets up a retirement account to receive those deductions if one is not set up already.

PHOTOGRAPH: ROBERT HOLMGREN

gory, helping you determine where your money's going and what you can trim. Categories can have subcategories; for example, you can set up Auto:Fuel and Auto: Service, letting you see how much you're spending on your car and exactly where that money is going.

How detailed should you be with the categories? As much as necessary. If you suspect that an inordinate amount of your grocery bill is going to ice cream, you may want to create a Groceries:Ice Cream subcategory. But Groceries:Ice Cream:SuperUltraChunk is a bit extreme. And if you're happy with your expenditures, there's no need to record extra details.

Balance your accounts. If you want to keep a tight watch on your checking account, compare your monthly bank statement to your data to see if there are any errors or unforeseen charges. In Money, check the *Balance* button on the right of the account registry screen; the program will explain what to do. In Quicken, click the *Reconcile* button near the top of the registry screen.

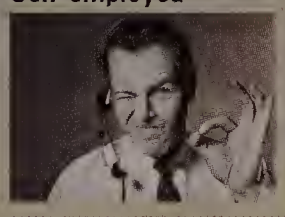
Consider doing your banking online. Balancing your account is a lot easier if your software can call your bank via modem. If your bank offers online banking, you can get up-to-date account information into your computer at any time of day or night. You can also transfer money from one account to another. Unfortunately, you can't bank online unless your institution offers the service.

The best situation is when your bank's online service is compatible with your particular checkbook program. If your bank doesn't support your program, or worse yet, doesn't have online banking at all, there's not much you can do except struggle along, wait for things to improve (they probably will as standards develop), or change banks.

Is This You?

Scenarios for Financial Well-Being

WHAT ARE THE BEST financial tools and strategies for you? That depends. Are you just starting out after college? Are you trying to put four children through law school? Are you Bill Gates? Find the scenario below that best matches your conditions and needs.

Scenario	Recommended Software	Advice
Starting out	The basics: Checkbook program, retirement planning software.	If your employer has a retirement savings plan, put as much of your long-term investment there as possible.
Married with children	The basics, plus tax software and Nolo Press's WillMaker.	Develop joint savings and retirement plans with your spouse; use your checkbook program to work out a budget.
Self-employed 	The basics, plus tax software and investment research tools.	Establish your own retirement savings plan, such as a SEP-IRA or Keogh, in which you choose your own investments.
Divorcing	The basics, plus tax software and Nolo Press's *How To Do Your Own Divorce.*	Reevaluate your new spending needs and constraints; redo your retirement plan and reconsider your insurance needs.
Retiring	The basics, plus Vanguard Retirement Manager.	Learn all you can about investing, go online to exchange e-mail with your computer-literate children and grandchildren.

PAYING BILLS

ONCE YOU'VE GOT A SYSTEM in place, paying your bills is a lot easier. You'll still have to use your own money, but you won't have to write all those checks, address all those envelopes, or lick all those stamps. The fact is that paying bills the traditional way costs you time and money. The alternatives also cost time and money, but if you do it right the return is greater.

Always pay your bills on time. Paying a bill late can result in interest charges, late fees, and even stopped services, but paying big bills early has its own punishment—lost interest. That's why checkbook programs have a bill reminder: Simply set it up to remind you five days before a major bill is due, and your check should arrive just in time to avoid late fees.

But how should you actually pay your bills?

If you have a lot of bills, pay online. Rather than write a check to, say, pay your mortgage, you can tell an online service to subtract the amount from your checking account and wire the funds to the mortgage company. It's fast, convenient (no more stamp licking), and at a service fee of about $6 a month, cheaper than using checks if you write more than 15 of them a month. Unlike online banking, you can pay bills online through your checkbook program even if your bank doesn't offer online anything.

Online bill-paying is "the fastest, cheapest way to disperse funds," says Michael Dougherty of Danville, California. He pays his bank $5 a month to handle both personal expenses and ▶

Intelligent Manageability At An Intelligent Price.

Choose a Compaq® Deskpro® 2000, and you'll get Intelligent Manageability, standard. You'll be able to manage, monitor, and even take inventory from a single location — at the touch of a button. So you'll replace legwork with peace of mind.

And power? With the Deskpro 2000, you can choose an extremely fast 100MHz or 133MHz Pentium® processor, or go with a lightning-fast 200MHz Pentium® Pro processor. And every Deskpro 2000 comes standard with PCI Local Bus Graphics, and RAM memory expandable to at least 128MB. So whichever model you choose, it's ready to grow when you do.

If you need network-ready desktops with integrated NIC Cards and enhanced Intelligent Manageability, no problem — go with the Deskpro 4000 or 6000. These powerful Compaq desktops are designed and built network-ready for connected office environments. And some models are available with high-performance graphics and Enhanced Business Pro Audio.

Whichever Deskpro you choose, it's clear that the best way to manage your future assets is to call us. Today.

COMPAQ DirectPlus®

TO ORDER, CALL:

1-800-888-2569
M-F 7-7; Sat. 9-3 CST. Ask for our free catalog.

1-800-308-7774
For your nearest Compaq Authorized Reseller.

NOW, JUST $1,139.*

Deskpro 2000
(shown with optional monitor)

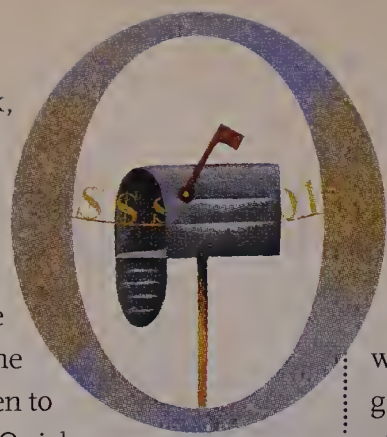
Deskpro 2000	Model 5100	Model 5133	Model 6200
Processor	100MHz Pentium®	133MHz Pentium	200MHz Pentium Pro
Standard Memory	8MB	16MB	32MB
Hard Drive	630MB	1.2GB	2.5GB and 8X CD-ROM
Cache Internal	16KB	16KB	16KB
Cache External	256KB Write Back (optional)	256KB Write Back	256KB
Video Memory/Max.	1MB/2MB EDO	1MB/2MB EDO	2MB/8MB
Video Graphics	PCI Local Bus	PCI Local Bus	Matrox MGA Millennium
Diskette Drive	3.5" 1.44MB	3.5" 1.44MB	3.5" 1.44MB
Expansion Slots/Drive Bays	5/5 Desktop	5/5 Desktop	5/5 Minitower
Ports: Serial/Parallel	1/1 (ECP)	1/1 (ECP)	1/1 (ECP)
Security Features	Yes	Yes	Yes
Processor Upgradable	Yes	Yes	Yes
Software Pre-installed	Windows® 95 or Windows 3.1	Windows 95 or Windows 3.1	Windows NT Workstation on CD-ROM
Limited Warranty†	3-Year	3-Year	3-Year
Price* (monitor not included)	**$1,139**	**$1,679**	**$3,419**

intel inside pentium® PROCESSOR

*All prices shown are Compaq DirectPlus prices and do not include monitors. Reseller prices may vary. Other models available; call for pricing. Call for lease prices. Leasing is provided for a term of 36 months and is subject to approved credit and certain terms and conditions. Call for details. †Deskpro is covered by a Three-Year Limited Warranty. Restrictions and exclusions apply. Some monitors and certain options are covered by a One-Year Limited Warranty. Call for details. Offer available in the U.S. only. ©1996 Compaq Computer Corporation. All rights reserved. Compaq and the Compaq Logo registered U.S. Patent and Trademark Office. Deskpro is a registered trademark and DirectPlus is a registered service mark of Compaq Computer Corporation. Products, prices and programs are subject to change without notice. The Intel Inside Logo, Pentium, and Pentium Pro are registered trademarks and the Pentium Processor Logo is a trademark of Intel Corporation. Windows is a registered trademark of Microsoft Corporation. Other products are trademarks or registered trademarks of their respective companies.

Circle 61 on reader service card

those of his business Kindermusik, which brings together children and music teachers. Because, as Dougherty says, Kindermusik is a "virtual company," he can get by without a business accounting program. He uses software geared to his type of company to run the business and track income, and Quicken to pay bills. "The receivable functions in Quicken are limited, but I find it quite good for the payable end," he says.



Find other ways. Justin Wells, a research assistant living in San Francisco, finds online bill payment too expensive in his situation. "There are cheaper ways to pay my bills," he notes. For no extra charge, his bank lets him pay his utility bills via a Touch-Tone phone, and his student loan and insurance payments are paid by automatic withdrawal. After that, he has to write and mail only one check per month—to his landlady. "The online bill payment services don't seem to realize that the Post Office is not their only competition," Wells says.

EXPENSE TRACKING AND BUDGETING

NOW THAT YOU'VE LEARNED THE ART of spending money, you have to master the skill of spending less of it—a much harder job. Should everyone analyze their expenses and draw up a budget? No. If you're meeting your savings goal (for most people, 10 percent of your gross income is a good target), don't worry. But if you can't manage to put anything away, or if you're going through a major life change—such as having children, starting a business, or getting a divorce—budgeting is a good idea. If you're entering your check and credit card expenses into a checkbook program, using categories that make sense to you, you're already halfway there. Follow these additional steps to wiser spending.

Note the details. Now would be a good time to add some subcategories to your checkbook program, and also to start tracking where your cash is going once it leaves the ATM. Knowing that you withdrew $900 last month is not nearly as enlightening as knowing that $200 of that went to lattés, $300 to lunches out, and $400 to gambling. If you're ▶

Tips for Budgeting

Easy Quicken Worksheets

TO BE EFFECTIVE, a budget must remain relatively simple and flexible. But when you open up Quicken's Budget window (*Features•Planning•Budgets*), you're presented with an intimidating list of categories. Odds are you'll only use some of them in your budget. Here's how to bring the categories you need to the top of the list:

From Quicken's Budget window, click *Edit* and select *Supercategaries.* Assign categories on the left-hand side of the dialog box to supercategories on the right-hand side. You should assign to a supercategory only those categories you wish to include in your budget.

After you've closed the dialog box, click *View•Supercategaries* in the Budget window to move the categories in the supercategories to the top of the list.

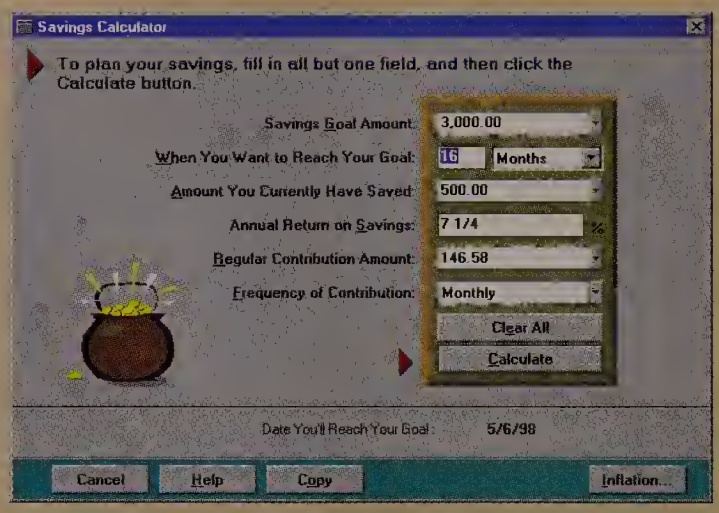
Budgeting a Mortgage in Quicken

ONE IMPORTANT MONTHLY BILL, your mortgage, won't show up clearly in Quicken. That's because Quicken treats part of that payment as an interest charge, in a category labeled Int. Exp., and part of it as a transfer from one account (checking) to another (your mortgage liability). Worse yet, the transfer isn't considered an expense, even if you're writing a check for it.

To include account transfers on your budget worksheet, click *View•Transfers* in the Budget window.

Watch Your Budget

IF YOU TEND TO EXCEED your budget in two or three particular spending categories, single them out and watch them carefully.



MICROSOFT MONEY'S SAVINGS CALCULATOR helps you set up savings goals and tells you when you'll reach them.

In Quicken 6.0, select *Features•Planning•Pragress Bar.* Click the *Cust* icon on the Progress Bar and choose a budgeting category (such as *Dining*) to track. A fuel-gauge chart at the bottom of the screen shows you how much of your budget you've used.

The process is a bit slower and clumsier in Microsoft Money 5.0. Click *Ga To* and select *Repart and Chart Gallery.* In the *Spending Habits* section, double-click *How I'm Daing an My Budget.* At the bottom of the resulting chart, click *Customize,* then *Mare Optians.* In the next dialog box, retitle your report. Uncheck *Show empty categories.* For the Dates, select *Current Manth.*

Near the bottom of the dialog box, click *Select transactions.* Click the *Categaries* tab, click *Selected categories,* and select the category you want to track. Click *OK,* then *View.* Click *Add to Favorites* to make the new report easily accessible.

Keep Savings Goals

SAVING UP FOR A STEREO SYSTEM or a sunny vacation? Quicken 6.0 lets you set up a "phantom" account within an existing real one for tucking money away toward your goal.

Select *Features•Planning•Savings Goals.* Click *New* and fill in the resulting dialog box. The program calculates how much you'll need to save each month to achieve your goal. When your paycheck comes in, go to the *Savings Gaals* window, click *Cantribute,* and fill in the resulting dialog box. Quicken then subtracts the recommended amount from the running balance of your checking account (even though, in reality, the money is still in the account). You can set up one of Quicken's progress bars to follow this account, then watch the needle inch its way toward that sunny beach in Mexico.

To see how much money is *really* in your checking account, click *View* above your register and choose *Hide Savings Goals.*

Money doesn't offer this feature, but its savings calculator can help you meet a goal. Click *Go Ta,* select *Planning Wizards,* then click *Savings Calculator.*

Think of it as the most important part of your PC, to go.

Presenting Pilot, the easy way to take the important personal info that's on your PC with you wherever you go.

Enter addresses, phone numbers, and appointments just once — on your Pilot or your PC. Then drop Pilot into its cradle and press the HotSync™ button. That's all it takes to keep your Pilot and PC in sync.

pilot™

The connected organizer.

Pilot comes complete with its own desktop personal information manager, plus everything you need to be up and running in minutes. It's also compatible with the Windows software you're currently using for personal information management, including Lotus Organizer, Schedule+, Now Up-to-Date, and Sidekick.* And at only 4.5" tall, 5.5 oz, and $299, it fits any pocket *and* pocketbook. To learn where to get one, call 1-800-881-7256. To arrange a demo, go to our web site, http://www.usr.com/palm.

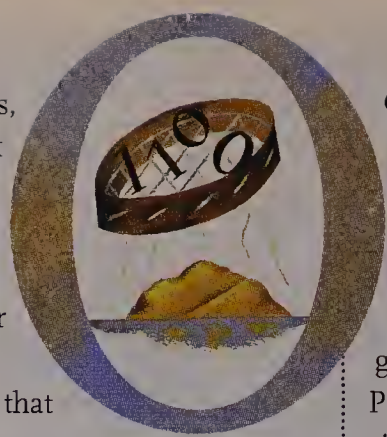
Now available at Circuit City, CompUSA, Computer City, Egghead, Office Depot, OfficeMax and Staples

*Optional links for third party desktop PIM software must be purchased separately. The average U.S. street price for Pilot 1000, complete with all desktop and organizer software, docking cradle and accessories. © 1996 U.S. Robotics. U.S. Robotics and the U.S. Robotics logo are registered trademarks and Pilot, the Pilot logo and HotSync are trademarks of U.S. Robotics and its subsidiaries. All other product names are registered trademarks of their respective owners.

U.S. Robotics®

Circle 173 on reader service card

having trouble living within your means, you may find it very worthwhile to track and detail your cash spending for a few months. Set up an account called "cash" in your checkbook program, and treat each cash withdrawal as a transfer to that account.



Create a budget. Once you're satisfied that you have accurate and meaningful data on your spending habits, you can create a budget that will help you put more money aside. Be honest with yourself about your priorities. Start by cutting the categories where you get the least value for your money, and don't be afraid to spend money where it will help you save in the long run. For example, a good smoking-cessation program could save you thousands of dollars on cigarettes and health care over time.

Some people find the checkbook programs' budget-making tools intimidating, and with good reason. These worksheets can often clutter your computer screen with lots of expense categories that you may not want or need for your purposes. You might want to start out by creating your budget on a blank sheet of paper or in a spreadsheet program. Later you can transfer your figures to your checkbook program in order to take advantage of its useful reporting capabilities.

Don't get compulsive. Stop tracking pennies as soon as you're happy with your savings. Expense tracking is a means, not an end in itself. "When I started using Quicken," recalls Wells, "I would save and plug in every receipt from every cash transaction... I spent so much time keeping up that I kept putting off more important financial tasks."

TAMING TAXES

NO MATTER HOW GOOD A JOB you do trimming your budget, there's one expense you can't avoid: taxes. Fortunately, your PC can help here, too, thanks to your checkbook program, specialized tax software, and the online world. In fact, if you've used a checkbook program diligently throughout the year, you've got a good start on having a record of your expenses, and that's a big help in getting your taxes in order.

The simple solution. If you don't own property, have no business expenses, and aren't itemizing, don't sweat it. With your checkbook program on screen for easy reference, fill out some forms and be done with it.

The thorough solution. But if your financial life is a bit more complicated, do yourself a favor and buy a specialized tax program like TurboTax or Kiplinger's TaxCut. Programs such as these use a straightforward yet sophisticated interviewing process that helps you complete your tax forms correctly, highlights any deductions you might have missed, and warns you of items on your return that might attract an audit. And yes, these tax programs allow you to import financial data from the major checkbook programs (For example, TurboTax is an Intuit program and, not surprisingly, imports data quite easily from Quicken).

When you first use such a ▶

Tips for Taming Taxes

Answering Tax Questions in Quicken

QUICKEN 6.0, while far from a full tax program, can help you see how different scenarios (for instance, married and filing jointly or married and filing separately) will affect your bottom line. Select *Features•Taxes•Tax Planner* and start playing with the numbers.

Don't Throw Away Last Year's Data

IF YOU'RE USING the same tax program this year as last, you can hit the ground running by bringing last year's information into this year's version of the software. Check your documentation to see how to do this with your program.

Jump Around the Interview

TIRED OF PLODDING THROUGH your tax program's interview process? You don't have to complete the interview exactly as the software program presents it.

In TurboTax's *Interview* tab, after you've clicked the *Start Interview* button, click the *Interview Navigator* button, then the *Topics* tab. Scroll through a list of the Interview sections, see what you've done and what you've still to do, and jump to whatever section you want.

In TaxCut's Q&A, click the 'Topic' heading and select any topic from the resulting drop-down menu.

Adjust Your W-4

IF YOUR FINANCIAL or family status changes during the year, you may need to change the tax amount withheld from your paycheck. Luckily, your tax software includes a W-4 worksheet for this purpose.

In TurboTax's *Interview* tab, click the *Interview Navigator* button, then click the *Topics* tab, and choose *Withholding* (under 'Planning for 1997'). TurboTax will lead you through the form and figure out how many personal allowances you should claim.

To get to the W-4 form in TaxCut, click the *Forms* tab. In the Select a Form box, scroll to the bottom and double-click *W-4 worksheet*.

If you don't have a tax program, you can easily acquire a W-4 form at the IRS's Digital Daily Web site (http://www.irs.ustreas.gov/prod/forms_pubs/forms.html).

DON'T START FROM SCRATCH for this year's taxes. Intuit's TurboTax lets you import last year's information.

Go Online With the IRS

The IRS has some wonderful stuff online. Check out the Digital Daily (http://www.irs.ustreas.gov/prod/cover.html) for fun graphics, good information, and all the IRS forms you can download. If you're a true tax junkie, you'll love the Online Tax Code (http://www.fourmilab.ch/ustax/ustax.html), which lets you browse the complete text of the U.S. Internal Revenue Code.

You
have
the
knowledge
commitment
stamina
poise
empathy
deadlines

We
print
the
schedules
reports
to do lists
minutes
outlines
vacation memo

Introducing the new Okidata OKIPAGE™ 4w

Easy to use

4 pages per minute

600 dpi laser class output

Windows® 95 Plug and Play compatible

*1 year overnight exchange***

5 year LED printhead limited warranty

*$299**

1-800-OKI-TEAM x650
http://www.okidata.com

OKIDATA®

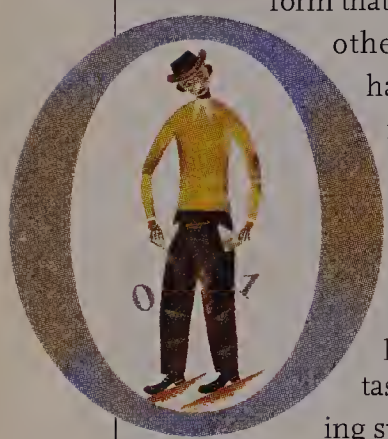
They're your ideas.
We just help.™

Okidata makes a full line of Windows, DOS and Adobe™ PostScript™ compatible personal business printers. We have 24 years and over 9 million printers worth of experience. Small office? Home office? Virtual office? For a full spec sheet, call Fax Back 1-800-654-6651. Ask for document 1003.

*Estimated retail price in the U.S. Actual price may vary. System Requirements: For Windows 3.1: 8 MB RAM, 386 DX/25 MHz or higher; For Windows 95: 8 MB RAM, 486/33 MHz or higher; also swap file of 8 MB (default size); 30 MB free disk space. **Available in U.S. and Canada only. ©1996 Okidata Reg. T.M., M.D. Oki Electric Industry Co., Ltd. Okipage TM. They're your ideas. We just help. T.M. Oki America, Inc.. Adobe, PostScript T.M. Adobe Systems, Inc. Windows Reg. T.M. Microsoft Corp.

program, you should anticipate a time-consuming interview. "The first year took lots of time to key in all the information. I had to set up my account numbers and bank statements and stuff like that," says Les James, a Washington, D.C.–based engineer for the federal government. "But when the following year came, it asked if I wanted to import that information." Doing state taxes proved easy the first time around: "You just import your federal taxes, and you're done."

Once you've got your tax forms prepared, you can use the software to print out the forms for easy mailing, or you can file electronically. But filing taxes online isn't like paying bills that way. You have to navigate several layers of buttons in your tax software program, pay a hefty charge ($19.95 with TurboTax), fill out a form that you wouldn't have to otherwise, and you *still* have to lick a stamp. Dealing with the IRS is never easy, is it? The only advantage is that you get your refund check (if you're due one) three to six weeks sooner. Unless you're expecting a big refund, it's not worth it.



Besides getting you through April 15th, tax programs can help you year-round with such tasks as adjusting your withholding and making sure the tax you're paying is on track.

Should you use a tax advisor? Yes, in specific circumstances. Use one if your situation is particularly complicated—for instance, if you're buying or selling a business. If you're simply not comfortable with the results you received from the program or are not able to interpret them, paying someone to look over your returns can give you some peace of mind.

INVESTING

ONCE YOU'RE STICKING to a budget and have your taxes under control, what are you going to do with all that extra money? You could produce a low-budget feature film, but there are surer and steadier routes to building wealth. Your computer and modem can help you sift through tons of data and information, place trades, and track your investments. There are three basic steps to smart investing: Gather the information you need to make a wise decision, invest your money, and keep track of how your investments are doing.

Online treasure. There are plenty of sites on the World Wide Web and online service forums where you can research stocks and funds at little or no expense. For instance, the Securities and Exchange Commission's Web site (http://www.sec.gov) contains free information on every publicly held company and mutual fund in the United States.

Mutual funds or stocks? Once you've gotten up to speed, that's the first question you have to ask yourself. Unless you're willing to take on a new, time-intensive hobby, you're better off buying mutual funds and leaving the difficult decisions to the pros.

TRADE-OFFS: JOSHUA FAIRBANKS tried using an online investment firm, but grew frustrated when his electronic broker failed to respond.

Fund finders. For most people, the online sites listed in "Investing by Modem" are adequate for researching funds. But if you're really serious about finding the right mutual funds, consider Morningstar's Principia Plus. This excellent program lets you plug in a description of what you're looking for (low operating expenses and above-average long-term performance, say); then it provides a list of appropriate funds, complete with a wealth of background data. But Principia is an investment in itself, costing a steep $795 a year, $495 a quarter, or $295 a month. What's more, the program lacks an adequate explanation of fund and investing basics: You'll probably want ▶

PHOTOGRAPH: RICH FRISHMAN

Quicken or Money?

WE SAW MAJOR UPGRADES last fall to both leading checkbook programs. How do Quicken 6.0 and Microsoft Money 5.0 stack up? Both are excellent 32-bit programs that are easy to set up and use, with online links and lots of help. Here's a quick rundown. (For more details, see "Money and Quicken Face Off Again," December.)

Ease of use. Both are excellent. Quicken's QuickTabs and Activity Bar make navigation simple. Money's Contents button gives you quick access to other areas of the program.

Checkbook registers. Money has the edge here, with a nicely designed screen displaying the current transaction and the last 21. But Quicken's familiar layout is still easy.

Web links. Money offers one-button access to the Microsoft Money Zone; Quicken takes you to Excite's Best of the Web page.

Online banking. Both programs give you choices for bill paying and let you easily download your latest transactions.

Planning for the future. Both programs have retirement planners, long-term goal planners, and loan wizards to help you figure out what you're getting into. Quicken's debt reduction planner will guide you through the process of paying off all your debts.

You can check out demos at the company's Web sites (http://www.intuit.com and http://www.microsoft.com/moneyzone).

—*Theresa W. Carey*

Theresa W. Carey is the founder of Alta Business Solutions and frequently writes about financial management software.

If you're more likely to purchase 5 computers than 500, here's *their* idea of a dedicated account team...

Meet Dougie. He's your customer service representative. And he's also a customer service representative for about 200 other customers every single day. Of course, you may have to wait about 30 minutes to talk to him because he's, like, busy, you know? Good news: Dougie's about as friendly as a cocker spaniel. Bad news: Dougie's about as bright as a pimento loaf.

Austin Edge Duet

- 133MHz Pentium® Processor
- 10X CD-ROM
- 16MB RAM
- 1GB Hard Drive
- Internal 33.6 Modem
- Internal 10Mbit Ethernet
- Unique docking station design (gives you more features than most desktops)
- Uniquely Designed for Windows NT®*

Lease price available as low as **$154** per month

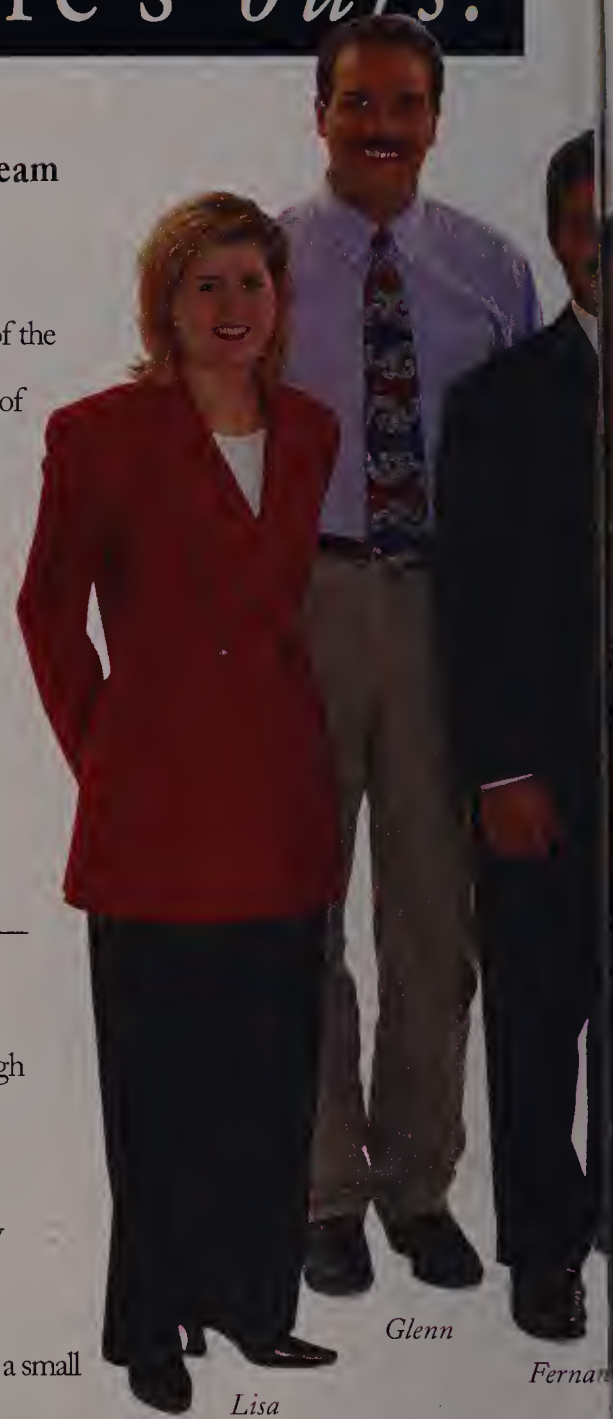
Austin Edge CD

- 133MHz Intel® Pentium Processor
- 8X CD-ROM
- 8MB RAM
- 1GB Hard Drive
- NOW with 12.1" TFT Screen
- Uniquely Designed for Windows NT*

Lease price available as low as **$133** per month

***Austin Edge Products are designed especially for use with Windows NT, providing "Hot Swap" support for PCMCIA cards and enhanced power management. Features not available on most other notebooks. Austin ... providing the EDGE in notebook technology.**

And here's *ours*.



You Deserve Austin's Total Team Approach and Guaranteed 2-Minute Response Time.

Just about everybody knows that some of the best technology in the world comes out of Austin. Austin Computer Systems, that is. For 14 years, serious technologists have relied on Austin Computer Systems, a wholly owned subsidiary of globally diversified IPC Corporation, Ltd., for the richest, most up-to-date configurations—all at very reasonable prices. And, along the way, our products—including high-performance desktops, notebooks, and servers—have earned high praise and numerous industry awards.

But behind the products are some pretty wonderful people. A company full of overachievers. And if you're purchasing for a small or mid-size business, we at Austin Computer Systems are the only company that's truly configured for you.

Feeling Underserved? There's a Reason.

When you think about it, multibillion-dollar companies don't have a tremendous economic incentive to give your account the attention it deserves. They're more focused on the big fish and making those quarterly earnings statements as positive as possible. But, if you're willing to be very patient and are so loyal to a brand that you're content to be ignored, they'll probably get around to you. With somebody like Dougie.

©1996 IPC Technologies, Inc.
All rights reserved. Intel, the Intel Inside Pentium Processor logo, and Pentium are registered trademarks of Intel Corporation. Windows NT is a registered trademark of Microsoft in the U.S. and other countries. All other company names and products are the trademarks or registered trademarks of their respective owners. The above are special promotional prices. Prices and specifications are subject to change without notice. Special offers are good for a limited time only. Call for specific details. Actual configuration shipped may vary from products shown. Screens simulated for advertising purposes. We are not responsible for errors in typography or photography. Lease payments based on a 36-month contract period. Leasing arranged for Austin Computer Systems by Marketplacement, Inc.

Ken

The Austin Difference: Customer Service Is a Team Thing.

Unlike the multibillion-dollar computer giants, we at Austin Computer Systems simply can't afford to ignore you. Putting it directly, your business is a big deal here. That's why your purchase gets the immediate attention of a highly experienced, multidisciplinary team. Each team features professionals from customer service, sales, accounting, and technical support who all office within feet of each other. Which means that communication and coordination of activities related to your account couldn't be any easier.

And here's what it adds up to: *A Guaranteed 2-Minute Technical Support Response Time. And a true team approach that's dedicated to creating turnkey business solutions for small and mid-size businesses like yours.*

So maybe it's time you stop discussing your sophisticated business computing requirements with the Dougies of the world and move your business to Austin. Check out our Austin PowerPLUS, Austin Élan Workstation, and Edge notebooks.

Then, call your team at **1-800-331-1501.**

AUSTIN™
COMPUTER SYSTEMS

THE COMPANY CONFIGURED FOR YOU.

10300 Metric Blvd.
Austin, Texas 78758
512-339-3500
Fax 512-454-1357

GSA# GS 35F 4029D
http://www.austindirect.com
1-800-331-1501

Circle 23 on reader service card

Austin Élan

- Pentium Pro Processor (up to 200 MHz)
- 16MB EDO RAM
- 1.2GB Hard Drive
- 128Bit 2M PCI Video
- 12X CD-ROM

Lease price available as low as **$69** per month

Austin PowerPLUS

- Pentium Processor (up to 200 MHz)
- 16MB EDO RAM
- 1.2GB Hard Drive
- 64Bit 2M PCI Video
- 12X CD-ROM

Lease price available as low as **$54** per month

Enhance your system with the Austin CineMagic using Cromatics Mpact technology*†

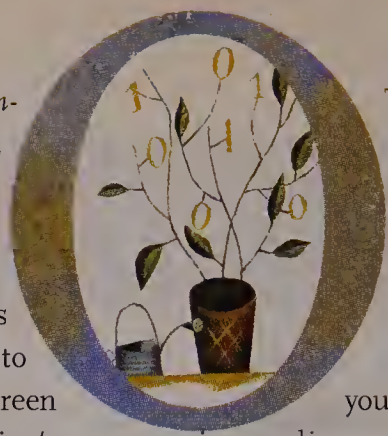
- **Supports DVD & MPEG Playback**
- **2D & 3D Graphics Video**
- **33.6 Data/Fax/Voice Modem with Telephony**
- **3D Enhanced Audio**

*Buy now and get videophone support free
† Upgrade for $429

intel inside
pentium PROCESSOR

to read a book on the subject first. Consider *A Random Walk Down Wall Street* (W. W. Norton & Co., 800/223-4830, 1996), by Burton Malkiel.

Taking stock. If you plan to play with individual stocks, check out the Value Line Investment Survey for Windows, where you'll get on-screen access to over 1700 stocks. With an interface similar to Morningstar's Principia's, the program lets you screen for stocks that meet certain criteria, such as low price/earnings ratios and high dividend growth.



If you have a large portfolio to manage or like to do extensive news searches, you might consider paying for a first-class, high-price online eye. EyeQ (http://www.datatimes.com) searches hundreds of publications to find articles on your desired topics, but the basic cost is $39 a month (that's $468 a year), and there are additional charges each time you actually use the service. Dow Jones News Retrieval–Private Investor Edition (800/369-7466) offers more regional newspapers than EyeQ, as well as wire services and its own publications. If you're willing to do all your online research on evenings and weekends, you can get 10 hours of Dow Jones per month for a flat $30; otherwise, you pay by the page, report article, or quote.

If you're looking for something less expensive, try the Internet News Alert (http://www.newsalert.com), which offers real-time quotes as well as news from wire services for $3.95 per month. You can run searches using a Boolean search operator, though every article after the first one you retrieve in a day costs $1.95.

Making the investment. Once you've selected some funds or stocks, of course, you have to buy them.

The cheapest way to buy stocks is through a discount broker. If you buy a few hundred shares of a stock, expect to pay a transaction fee of between $30 and $100. (If you buy no-load mutual funds directly from the sponsoring company, you can avoid transaction fees altogether.)

You can reduce your transaction fees by placing your trades electronically. If you're already using a major discount broker, such as Schwab (http://www.schwab.com), Fidelity (http://www.fid-inv.com), or Jack White & Company (http://www.pawws.com/jwc), check out its site on the World Wide Web; you'll save 10 percent off your fees by trading online. All of these brokers also offer online access to your account information.

Electronic brokers such as eTrade (http://www.etrade.com) cut commissions even further, typically to half or less of what larger discounters like Fidelity or Schwab charge. These prices are tempting and certainly worth considering, but they sometimes come at a price in terms of customer service. "I got no response for 26 days after sending eTrade a check to open my account," complains Joshua Fairbanks, a full-time investor from Seattle. Fairbanks finally had to call eTrade himself to get a confirmation number. Every time he called, "I got stuck on hold from 10 to 35 minutes." Fairbanks canceled his account with eTrade after about a month. According to eTrade staffers, the company received Fairbanks' application on July 1, 1996, opened his account July 5, and processed his first trade July 18; they could not explain the 26-day delay. They admit to having had problems answering calls promptly last summer, but claim an ▶

Tips for Investing

Compare Mortgages

REFINANCING YOUR HOME? You should probably compare different loan options.

In Quicken, select *Features•Planning•Financial Planners•Refinance.* This gives you a dialog box for determining whether refinancing makes sense and calculating how long it will take you to recoup the costs of refinancing.

Money includes a useful feature that lets you compare mortgages. From the *Go To* button, select *Planning Wizards* and click *Mortgage Planner.* A series of dialog boxes will ask you detailed questions about each mortgage; then you can compare the overall costs and get advice on how to interpret the comparisons.

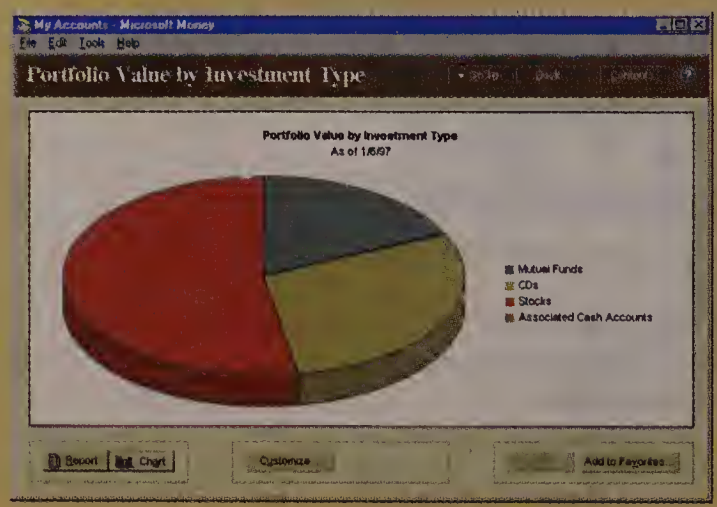
SEC: Find the Right Company or Fund

THE SECURITIES and Exchange Commission's Web site is full of useful information—once you know how to use it.

To research a company or mutual fund, go to SEC's 'Search the EDGAR Database' page (http://www.sec.gov/edaux/searches.htm) and click *CIK (Central Index Key) and Ticker Symbol Lookup.* Type as much of the company's name as possible, and avoid using abbreviations or acronyms. For example, enter **International Business Machines**, not **IBM**.

The result will be an ungainly number. Highlight it and press **<Ctrl>-C** to copy it to the Clipboard. Backtrack to the 'Search the EDGAR Database' page and select *Search the EDGAR Archives.* In the resulting page's 'search keywords' field, press **<Ctrl>-V** to paste in the CIK of the company or fund you're researching, and then press **<Enter>**. You'll get a listing of every document that the chosen company has filed electronically with the SEC.

With the document list in front of you, scan the 'Form Type' column to find 10-Q and 10-K documents. These contain the company's quarterly and annual financial filings—an investor's primary research tools.



COMPARE YOUR INVESTMENTS. Money (as well as Quicken) charts how different types of investments are doing.

Track Your Investment Returns

QUICKEN AND MONEY can calculate your investment returns two different ways, and it's important to know which is which. A *portfolio value* report calculates the cost basis of your investments, while an *investment performance* report shows the more accurate internal rate of return. To find these two reports in Quicken, select *Reports•Investment.* In Money, click *Go To,* select *Report and Chart Gallery,* and click the *Investments* button.

P SureStore CD-Writer

Solid engineering.
High performance.
Broad acceptance.

That's our drive.

The new HP SureStore CD-Writer 6020es

© 1996 Hewlett-Packard Co. All rights reserved

Introducing the new HP SureStore CD-Writer.

It's a fast paced world. To succeed, you have to make an impression. And there's no better way to make an impression than on CD using the new HP SureStore CD-Writer 6020 CD-Recordable drive. CD-Writer lets you ❶ record awesome multimedia presentations to take on the road. Or ❷ deliver CDs to clients and others with total confidence that it can play in millions of CD-ROM readers worldwide.

The robust software suite included with the CD-Writer lets you ❸ copy all your drafts to CD quickly and easily. And files stored on CD can be retrieved in seconds. It's ideal for ❹ creating permanent archives of your files. What's more, CD-Writer can ❺ make custom audio CDs that can be played on stereo CD players at home or in the car. CD-Writer is also a 6X* CD reader so it can ❻ play all your CD-ROMs smoothly. Now we're cruisin'.

Given all the things you can do with the HP SureStore CD-Writer, what's your drive? Check it out. Visit your reseller or call 1-800-826-4111 ext. 2268. Or you can steer toward the web and find HP SureStore CD-Writer at www.hp.com/go/storage.

HEWLETT® PACKARD

*Actual speed may vary according to application used

average response time of 2 minutes as of October.

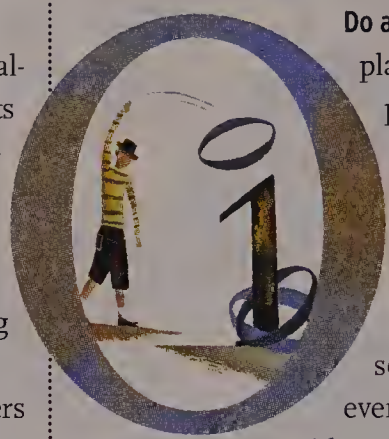
Track your investments. Once you've made your investments, you can use your computer to keep track of how they're doing. Actually, if you've invested only in funds, you can skip using your computer for this and simply read the funds' annual reports, which give you your total return.

If you've bought stocks or want your computer to help you calculate your portfolio's overall returns, you should set up accounts in your checkbook program and enter the data from your quarterly statements. You might be wondering, Do I have to type in all that data? Unfortunately, you'll probably have to. Both Quicken and Money can go online and download the information for you, but the data they grab is incomplete, lacking dividends that add value to your investments.

Be careful not to misinterpret the return reports. The numbers are often confusing. Don't mistake the *cost basis* of your investments for the *internal rate of return*. Cost basis, which is useful primarily for taxes, takes the amount of your original investment and continues to add to that your reinvested dividends and capital gains, resulting in a lower-than-actual return. The true picture of how your investments are faring is the internal rate of return, which takes into account the dividends, interest, and other payments you receive as well as increases and decreases in the value of the investment.

RETIREMENT PLANNING

YOU DON'T WANT TO WORK your whole life, do you? With the decline of corporate pension plans and the uncertainty of a burdened Social Security system, the only way you can be sure of retiring in comfort is to start preparing for it now.



Do a quick calculation. Try out the retirement planning calculator built into checkbook programs just to see where you stand. They're simplistic, but they can give you a general idea of how much you'll need to save to live comfortably during your golden years.

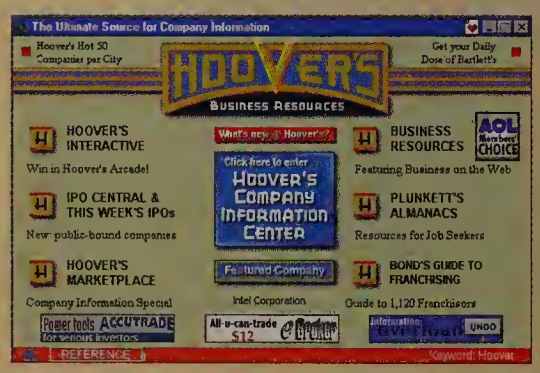
Get retirement planning software. To seriously plan for your retirement, however, you need something that lets you play with assumptions like your tax rate, or specify how much of your savings is inside versus outside retirement accounts. For that, you'll want something like the Vanguard Retirement Planner 3.0 or Quicken Financial Planner 2.0. These programs allow you to test multiple scenarios ("Okay, is Bora Bora an option if I save 12 percent a year?"), offer advice, and hold your hand along the way.

When you first try one of these programs, you may be told that you need to save far more ▶

Investing by Modem

PUT YOUR MONEY where your modem is. These sites and services let you research your investments and options, get quotes, or trade stocks online.

HOOVER'S COMPANY PROFILES (America Online: keyword Hoover; CompuServe: go hoover) Here you'll find a tremendous amount of basic information on publicly held companies. The AOL version links to company Web sites as well as to the SEC site.



NEWS ALERT (http://www.newsalert.com) Five bucks a month buys you real-time quotes and financial news. Searches cost extra, but the fees are reasonable.

STANDARD & POOR'S (CompuServe: go s&p) If you can stand the dreadful, text-based user interface, Standard & Poor's respected market analysts offer industry and individual stock reports for $1 and $2, respectively.

STRATEGIC INVESTOR (Prodigy: jump strategic investor) This database on thousands of stocks and mutual funds lets you screen the information to find just the offerings that meet your criteria. Cost is $14.95 per month.

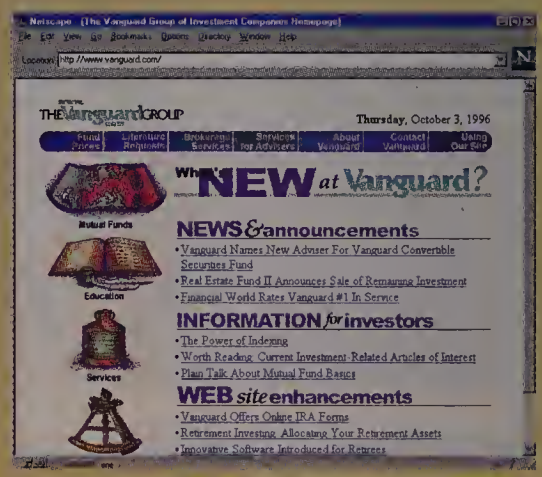
DOW JONES BUSINESS CENTER (America Online: keyword dow jones) Here's a wealth of daily news on the financial markets and business world, including articles from Dow Jones publications: *Barron's, The Wall Street Journal* (U.S. and foreign editions), and *National Business Employment Weekly.*

BUSINESS DATABASE PLUS (CompuServe: go busdb) Before you invest in hog futures, find out about their past. Business Database Plus provides access to hundreds of businesses plus industry and special-interest publications.

SECURITIES AND EXCHANGE COMMISSION (http://www.sec.gov) The best collection of investment information on the Web. All publicly held companies and mutual funds must file annual and quarterly reports and other documents with the SEC, so it has just about everything—assuming you can find it.

U.S. TREASURY (http://www.ny.frb.org) If you own any old Treasury bonds with variable interest rates, you can use this site to determine what they're worth today and what current interest rate you're earning.

WALL STREET JOURNAL INTERACTIVE EDITION (http://interactive.wsj.com/) For $49 per year ($29 if you subscribe to the printed *Wall Street Journal*), you can create your own personalized online version of America's premier financial news daily.



VANGUARD (http://www.vanguard.com) Along with information on Vanguard's own excellent investment portfolios, you'll find high-quality educational materials here.

SCHWAB (http://www.schwab.com) The U.S.'s largest discount broker site offers cut-rate security trades if you're willing to forgo personal service. This site also has some reasonably helpful resources.

Let The Perfect Expert Find the Answers.

Corel's office software helps you finish faster with less effort.

Say goodbye to less-than-intuitive help menus and complicated computer jargon. Corel's *The Perfect Expert* help feature taps into the power and versatility of industry-leading office software and makes it work for you. It's available in our 32-bit office suites and works as fast as you do.

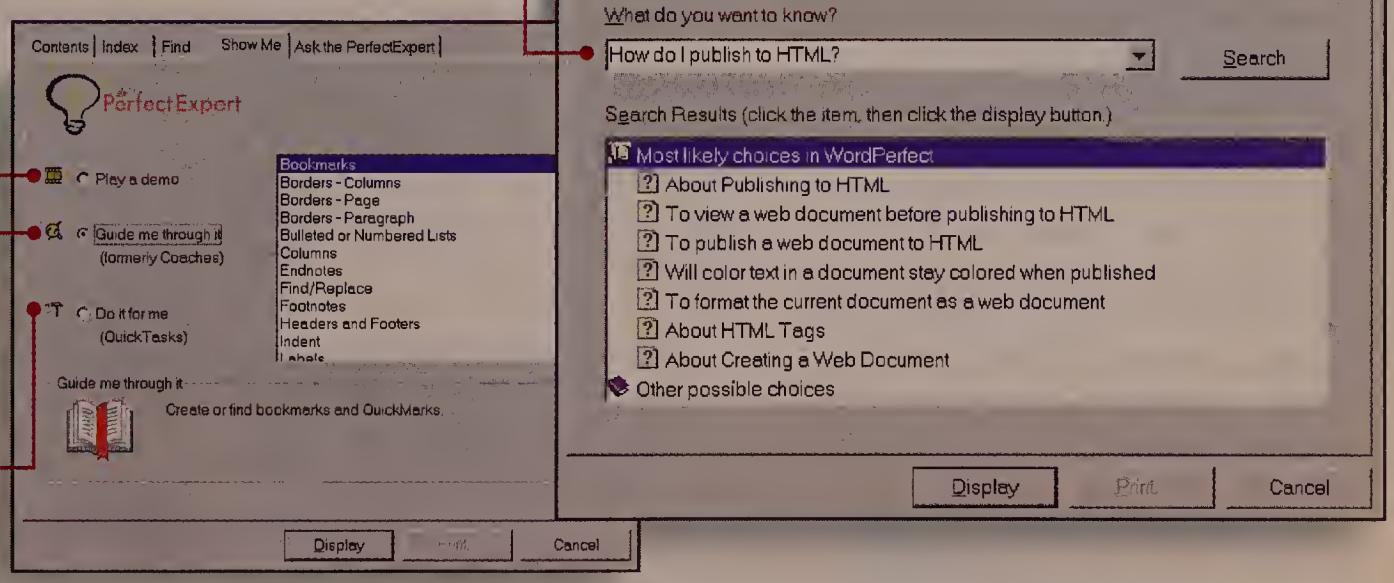
Need expert advice in a hurry? Just click on Ask the Perfect Expert™. Ask any task-related question in ordinary, everyday language. Easy to access and designed to offer time-saving solutions for a wide variety of office tasks, it's quite simply the fastest and friendliest way to get the help you need, when you need it. *Features that help you finish faster with less effort. Corel® WordPerfect® Suite 7 and Corel® Office Professional 7, the best in office suite applications.*

Ask a question in your own words and The Perfect Expert will display a list of available help options.

Choose ***Play a demo*** for a demonstration of a specific feature or task.

Let The Perfect Expert walk you step by step through a task.

Choose ***Do it for me*** to automate everyday and more complex tasks.



Circle 70 on reader service card

BEST OF BYTE PC EXPO '96

PC WORLD BEST BUY

CREATIVE COMPUTERS PC Mall TOUR PC SUPERSOURCE

1-800-555-6255

*US$ plus applicable taxes.

COREL WTA TOUR

Corel, Official World Title Sponsor of the COREL WTA TOUR

COREL

KUR-0317-US

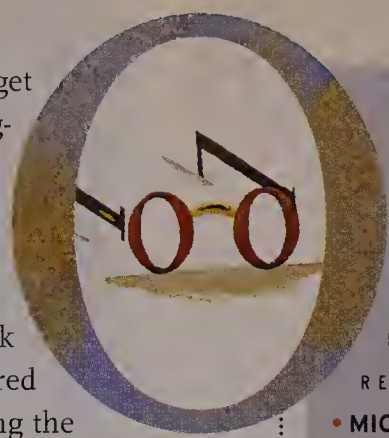
http://www.wordperfect.com

Call now for faxed literature!

1-613-728-0826 ext. 3080

Corel and WordPerfect are registered trademarks and Ask the Perfect Expert is a trademark of Corel Corporation or Corel Corporation Limited.

money than you think you ever can. Don't get too depressed. You can improve your long-term picture by investing more aggressively, tapping your home's equity, and scaling back your old-age spending needs. Maybe you'll even inherit something by then.



Manage your retirement. When Frank Heinisch of San Ramon, California, retired from AT&T at age 48, he was already using the Vanguard Retirement Planner, but he found it wasn't enough. So he bought the Vanguard Retirement Manager, which helped him figure a budget, manage his nest egg, and minimize estate taxes. It "confirmed what I thought I had planned out for the future," he says. "This works out much better."

THE BOTTOM LINE

REMEMBER THAT SOFTWARE and online services are nothing more than tools. If a program helps you get organized, great. If it finally motivates you to do something you have been putting off for a long time, so much the better. But if it causes you to fritter away more time on a financial task than you ever did before, use it selectively or forget it.

No program or service understands the whole of your financial needs. You have to keep the big picture in mind the whole time and make the important decisions yourself.

Eric Tyson is a syndicated finance writer, counselor, and author of several best-selling books including Personal Finance for Dummies, 2nd Edition *(IDG Books, 1996, 800/762-2974) and* Investing for Dummies *(IDG Books, 1996, 800/762-2974).*

WHERE TO BUY

- **KIPLINGER'S TAXCUT** $25, Block Financial, 800/235-0229, http://www.kiplinger.com
  READER SERVICE NO. 731
- **MANAGING YOUR MONEY** $20, Meca, 800/288-6322, http://www.mymnet.com
  READER SERVICE NO. 732
- **MICROSOFT MONEY 5.0** $35, Microsoft, 800/426-9400, http://www.microsoft.com/moneyzone
  READER SERVICE NO. 733
- **PRINCIPIA PLUS** $795 a year, $495 a quarter, or $295 a month, Morningstar, 800/876-5005
  READER SERVICE NO. 734
- **QUICKEN 6.0** $40, **QUICKEN FINANCIAL PLANNER 2.0** $30, **TURBOTAX** $35, Intuit, 800/446-8848, http://www.intuit.com
- **VALUE LINE INVESTMENT SURVEY FOR WINDOWS** 2-month trial $55, Value Line, 800/535-9648
  READER SERVICE NO. 735
- **VANGUARD RETIREMENT PLANNER 3.0** $15, **VANGUARD RETIREMENT MANAGER 1.0** $25, The Vanguard Group, 800/950-1971, http://www.vanguard.com
  READER SERVICE NO. 736
- **WILLMAKER** $42, **HOW TO DO YOUR OWN DIVORCE** $24.95 (book plus disk), Nolo Press, 800/992-6656, http://www.nolo.com
  READER SERVICE NO. 737

FOR MORE INFORMATION ABOUT ALL PRODUCTS IN THIS ARTICLE, CHOOSE READER SERVICE NO. 915.

Tips for Retirement Planning

Reduce Inflation

BOTH QUICKEN Financial Planner and Vanguard Retirement Planner, by default, calculate your retirement needs based on an average annual inflation rate of 4 percent. Vanguard also provides data showing that over the past 30 years inflation has averaged 5.4 percent. However, 30 years is a small slice of U.S. economic history and includes the double-digit inflation years of the late 1970s and early 1980s. Consider using a 3 percent inflation rate; that's been the average annual inflation this century, and it's still higher than the 1.3 percent average of the past two centuries.

Projecting Investment Returns

OVERESTIMATE YOUR INVESTING prowess and you could fall far short of the amount of money you'll need to save. Underestimate your expected returns and your goal will seem discouragingly hopeless. As a rule, the more money you put into stocks (as opposed to mutual funds), the greater your return will be (assuming you follow the stock market and invest wisely).

Here are some guidelines for estimating your investment returns:

Portion Invested	Average Annual Return
80 to 100 percent	10 to 12 percent
60 to 80 percent	9 percent
40 to 60 percent	8 percent
20 to 40 percent	7 percent

Figuring Your Tax Rate

YOU'LL NEED TO CALCULATE your overall tax rate to input into your retirement planning program. Get out your most recent federal and state income tax returns. Look up the total tax you paid, then divide that frighteningly large number by your total taxable income. The resulting percentage is your average tax rate, which is the number to plug into the program.

If you're expecting your income to change radically in the near future—for instance, if you're about to retire or are expecting a promotion—you could crank different income numbers through your tax returns to come up with a better estimate.

Know the Risks

ONCE YOU COME UP WITH an investment mix, be sure you understand the risks.

With the Vanguard Retirement Planner, check out the Portfolio Planner Risk area. Here, you can see the probable downside of a portfolio similar to yours. Using historical data, the program shows you the worst years such a portfolio has had over time.

In Quicken Financial Planner's Planned Return section, click the *Historical* and *Projected* buttons. Though history won't repeat itself exactly, you'll do better to embark on your investing endeavors with both eyes wide open. Knowing how bad things *can* get will hopefully increase your chances of staying the course if the markets tank. ■

Good choice.℠

At Phil's Café, "Monday's Chef's Special" is the obvious choice. And when it comes to buying a computer, the choice is just as clear. Choose Quantex and you'll always get the finest, name-brand-only components and state-of-the-art technology, at a competitive price. Period.

Precision engineering. **ISO 9002** certification of our manufacturing facilities reaffirms our conformance to the strictest standards. Each system is 100% Novell Certified, too. Choose Quantex and you choose reliability

State-of-the-art technology. Quantex gets it to you first. This month, we're featuring three new technologies: 12X CD-ROM, Video Phone, and ISDN.

Responsive care after the sale. Featuring our NEW! 3-Year Warranty, the Quantex Care Package bolsters our commitment to you. Make the Right Choice. Give us a call today.

QUANTEX
GOOD CHOICE℠.

Videophoning. The gift of presence.

HOME series

Full screen video phone image is for illustration purposes only.

The Quantex Video Phone PC keeps the home fires burning. It's holiday time and the candles are burning low. You're missing her. Is she missing you? You reach for the phone to call. She answers. You decide to try something new. You both boot up your Quantex QP5/VM-1's with Video Phone/Intel ProShare™ technology which connects your two computers over a standard phone line. In just seconds, her sparkling face is displayed in the "Guest Window" on your PC screen with simultaneous audio and video. Now you can toast the memories together in a whole new way.

Grandparents enjoying their new Quantex Video Phone PC

Sound like incredible holiday magic? It is. And the magician is Quantex, working side-by-side with Intel to bring you *the first Video Phone available on a home PC!* Video Phone is now standard fare with the Quantex VM-1 Systems over a single, plain old telephone wire. No installation struggles, and meticulously engineered for your Quantex machine to give you true "plug and play" performance. Video Phone from Quantex is anamazing phenomenon to share with your college-bound kids, distant friends, closest relatives, even your colleagues--on special days and everyday.

Upgrade specials

- MS Natural Keyboard (Upgrade from the 104-Key Keyboard) . . . $39
- MS Sidewinder 3D Pro Digital Joystick $59
- HP Color Deskjet 680c Printer (Covered by manufacturer's warranty only) . $299
- Altec Lansing ACS-400 Surround Sound Speakers w/ACS-250 Subwoofer. $120
  (Upgrade from PCs with Altec ACS-40 Speakers)

With 3-D dazzle from Quantex, New Year's resolutions are gonna be a lot more fun! Picture exquisite "reach out and touch it" depth, flawless resolution, smooth as silk video playback, and you're talking 3-D dazzle from Quantex's VM-1 systems. Our state-of-the-art 3-D offering will enhance all your Windows 95® 3-D-based applications and will give even dedicated game machines like Nintendo and Sega a run for their money!

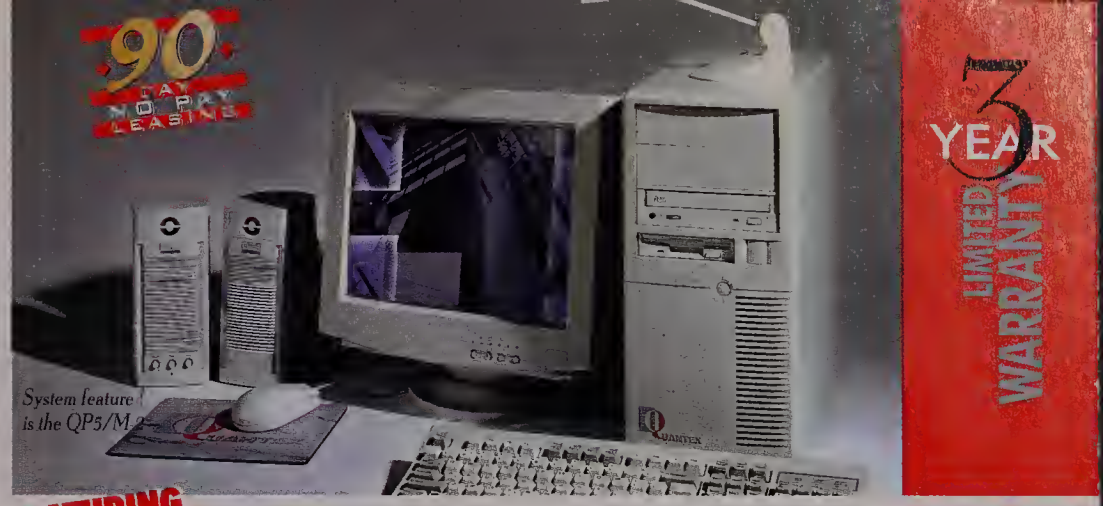
Deck the halls with the Ensoniq™ Soundscape VIVO-90 Sound Card! Since only the best is good enough for Quantex, we present home-theater quality sound by Ensoniq. Featuring an advanced 32-bit wavetable synthesizer with a mind-blowing 90dB digital audio record/playback, the VIVO-90 leads by example. So go ahead play a little James Brown while you work. We won't tell.

Sound Card Comparison

	Direct X Support	Modem Connection	VideoPhone Connection
Ensoniq-Vivo90	Yes	Yes	Yes
Sound Blaster AWE32	No	No	No
Gravis UltraSound P&P Pro	No	No	No

Biggest. Best. Brightest. We bring it to our customers, first. Quantex. Good Choice.

intel inside pentium® PROCESSOR



FEATURING VIDEO PHONE

QP5/133 VM-1 $1949

Business lease: $ 69/month

- Intel® 133MHz Pentium Processor
- 16MB EDO Memory / 512KB Pipelined Burst Cache
- 2.1GB EIDE Mode 4 Hard Drive
- 3.5" 1.44MB Floppy Drive
- Diamond Stealth 3D 2000 w/4MB EDO DRAM
- MAG 15" .25dp Digital Monitor (14.0" viewable) w/SONY Trinitron Tube
  Upgrade to Mag 17" monitor (16.1" viewable) for $200
- Intel **DSVD** 28.8 Kbps Fax/Modem
- Toshiba 12X 125ms EIDE CD-ROM Drive
- Ensoniq VIVO-90 32-Bit Wavetable Synthesizer
- Altec Lansing ACS-45 Speakers w/Subwoofer
- 104-Key Keyboard With MS PS/2 Mouse
- MS Windows '95 With MS Plus
- Family Software Bundle (Preinstalled)
- Special VideoPhone and Intercast Bundle
- Video Phone Camera
- Intel Video Capture Card w/TV Tuner
- 3-year limited Warranty

QP5/166 VM-1 .....$2149
QP5/200 VM-1 .....$2249

QP5/133 M-2 $1599

Business lease: $ 56/month

- Intel 133MHz Pentium Processor
- 16MB EDO Memory / 256KB Pipelined Burst Cache
- 1.6GB EIDE Mode 4 Hard Drive
- 3.5" 1.44MB Floppy Drive
- STB 64-bit Virge 3D w/2MB EDO DRAM
- MAG 15" .25dp Digital Monitor (14.0" viewable) w/SONY Trinitron Tube
- 33.6 Kbps Fax/Modem w/Voice Mail and Speakerphone
- Toshiba 12X 125ms EIDE CD-ROM Drive
- Ensoniq VIVO-90 32-Bit Wavetable Synthesizer
- Altec Lansing ACS-40 Speakers
- Mini-Tower Case
- 104-Key Keyboard With MS PS/2 Mouse
- MS Windows '95 With MS Plus
- Family Software Bundle (Preinstalled)
- 3-year limited Warranty

QP5/166 M-2 .....$1799
QP5/200 M-2 .....$1899

QP5/166 M-3 $2099

Business lease: $ 74/month

- Intel 166MHz Pentium Processor
- 24MB EDO Memory / 512KB Pipelined Burst Cache
- 2.5GB EIDE Mode 4 Hard Drive
- 3.5" 1.44MB Floppy Drive
- Matrox Mystique 3D w/2MB SGRAM
  (Free 3D game included!)
- MAG 17" Digital Monitor (16.1" viewable)
- 33.6 Kbps Fax/Modem w/Voice Mail and Speakerphone
- Toshiba 12X 125ms EIDE CD-ROM Drive
- Ensoniq VIVO-90 32-Bit Wavetable Synthesizer
- Altec Lansing ACS-40 Speakers
- Mini-Tower Case
- 104-Key Keyboard With MS PS/2 Mouse
- MS Windows '95 With MS Plus
- Family Software Bundle (Preinstalled)
- 3-year limited Warranty

QP5/133 M-3 .....$1899
QP5/200 M-3 .....$2199

QP5/200 M-4 $2399

Business lease: $ 84/month

- Intel 200MHz Pentium Processor
- 32MB EDO Memory / 512KB Pipelined Burst Cache
- 3.2GB EIDE Mode 4 Hard Drive
- 3.5" 1.44MB Floppy Drive
- Matrox Mystique 3D w/4MB SGRAM
  (Free 3D game included!)
- MAG 17" Digital Monitor (16.1" viewable)
- 33.6 Kbps Fax/Modem w/Voice Mail and Speakerphone (Add Motorola ISDN Terminal Adapter for $249)
- Toshiba 12X 125ms EIDE CD-ROM Drive
- Ensoniq VIVO-90 32-Bit Wavetable Synthesizer
- Altec Lansing ACS-45 Speakers w/Subwoofer
- Mini-Tower Case
- 104-Key Keyboard With MS PS/2 Mouse
- MS Windows '95 With MS Plus
- Family Software Bundle (Preinstalled)
- 3-year limited Warranty

QP5/133 M-4 .....$2099
QP5/166 M-4 .....$2299

Family Software Bundle

- Novell PerfectHome
- Quicken SE
- Comptons: Interactive Encyclopedia, Zoo Explorer
- Comptons Reference Collection
- BodyWorks 5.0
- Me & My World Multimedia Dictionary
- Mecklermedia's Official Internet World™ Internet Yellow Pages
- The Modern Age Books Windows95 Primer
- America Online, Prodigy, CompuServe-(one month trial each)
- NetCruiser Plus (Over 400 hrs of free Internet access for one month)
- Microsoft: Internet Explorer 2.0, Phone Telephony Software 1.0

QUANTEX

GOOD CHOICE.℠

1.800.896.4898

www.quantex.com

Hang on tight!

Speed! It never fails to thrill! So be prepared for the ride of your life with "true" 12X CD-ROM!! It's here in all its glory. The fastest CD-ROM on the planet, NEW from Toshiba! Why 12X? Why a Porsche? Speed, of course. Speed for your multimedia addiction at a blazing fast 1.8MB per second. As a matter of fact, the 12X CD-ROM flashes the fastest access time around with an incredible 115ms average random seek and 125ms average random access time. The NEW Toshiba 12X CD-ROM is ready and waiting to ship to your door. Quantex, once again winning the race for speed and performance!

MAXIMUM 12X SPEED

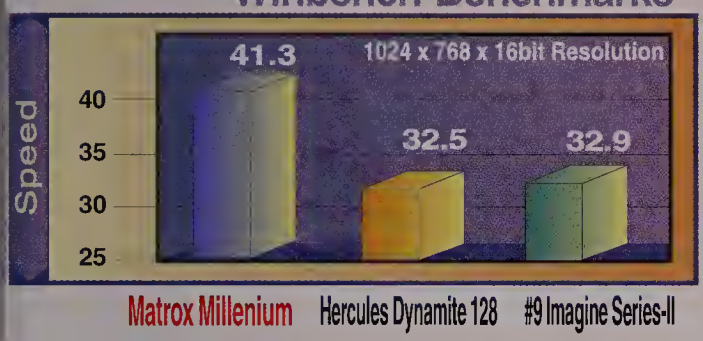
**12X CD-ROM is the fastest CD-ROM drive in the world. With a 1.8MB per second transfer rate, maybe we should've included air bags. We'll watch for cops. You enjoy the ride.*

Fly into the next Millennium with the world's fastest graphics accelerator from Matrox™! Quantex takes you into the 21st century with the new Matrox MGA Millennium 3D – the world's fastest professional graphics accelerator. Whether you're a corporate power user or a 2D/3D designer, the Millennium is the video card for you. This 64-bit hot shot features dual-ported Windows RAM. In Windows 95 or NT, demanding office applications will run faster than ever. So, whether cruising the Web or viewing a corporate training video, you'll fly. For graphic designers demanding needs, the Millennium delivers the highest

Upgrade specials

- MS Natural Keyboard (Upgrade from the 104-Key Keyboard) $39
- HP Color Deskjet 680c Printer (Covered by manufacturer's warranty only.) . . $299
- HP Laserjet 5L Printer (Covered by manufacturer's warranty only.) $479
- Intel EtherExpress™ PRO/10+ LAN Adapter (ISA 10 Base-T) $59
- Intel EtherExpress™ PRO/100 LAN Adapter (PCI 100 Base-T) . . . $119
- Panasonic PD Drive w/650 MB Removable Cartridge (Upgrade from 12X CD-ROM) $199
- Motorola ISDN Terminal Adapter $249
- Hitachi 21" .22dp Monitor (19.92" viewable) [Upgrade from 17" Monitor (16.1" viewable)] $699

esolution, the truest color and hardware Gouraud shading. The best part: full screen, ull motion picture playback – great for true



video, multimedia presentations, and 3D CAD and 3D animation. The Millennium is the world's fastest video accelerator!

Put the power of the Internet to work for you with Corel's WordPerfect Suite® 7!

Corel's full-featured, 32-bit WordPerfect Suite 7 with WordPerfect®7, QuattroPro®7, and Corel Presentations7™, is the best choice. This powerhouse redefines the traditional office suite with exceptional features developed to work the way you do. Put this winner through its paces on one of Quantex's high performance machines.

First in Speed.

First in components.

Quantex.

GoodChoice.

intel inside pentium® PROCESSOR

QP5/133 SM $1699

Business lease:$ 60/month

- Intel 133MHz Pentium Processor
- 16MB EDO Memory / 512KB Pipelined Burst Cache
- 2.1GB EIDE Mode 4 Hard Drive
- 3.5" 1.44MB Floppy Drive
- Diamond Stealth 3D 2000 w/4MB EDO DRAM
- MAG 15" .25dp Digital Monitor(14.0" viewable) w/SONY Trinitron Tube
- 33.6 Kbps Fax/Modem w/Voice Mail and Speakerphone
- Toshiba 12X 125ms EIDE CD-ROM Drive
- Ensoniq VIVO-90 32-Bit Wavetable Synthesizer
- Altec Lansing ACS-40 Speakers
- Mid-Tower Case
- 104-Key Keyboard With MS PS/2 Mouse
- MS Windows '95 With MS Plus
- Professional Software Bundle (Preinstalled)
- 3-year limited Warranty

QP5/166 SM $1899
QP5/200 SM $1999

QP5/166 SM-1 $1999

Business lease:$ 70/month

- Intel 166MHz Pentium Processor
- 24MB EDO Memory / 512KB Pipelined Burst Cache
- 2.5GB EIDE Mode 4 Hard Drive
- 3.5" 1.44MB Floppy Drive
- Diamond Stealth 3D 2000 w/4MB EDO DRAM
- MAG 15" .25dp Digital Monitor(14.0" viewable) w/SONY Trinitron Tube
- 33.6 Kbps Fax/Modem w/Voice Mail and Speakerphone
- Toshiba 12X 125ms EIDE CD-ROM Drive
- Ensoniq VIVO-90 32-Bit Wavetable Synthesizer
- Altec Lansing ACS-45 Speakers w/Subwoofer
- Mid-Tower Case
- 104-Key Keyboard With MS PS/2 Mouse
- MS Windows '95 With MS Plus
- Professional Software Bundle (Preinstalled)
- 3-year limited Warranty

QP5/133 SM-1 .....$1799
QP5/200 SM-1 .....$2099

QP5/166 SM-2 $2299

Business lease:$ 81/month

- Intel 166MHz Pentium Processor
- 32MB EDO Memory / 512KB Pipelined Burst Cache
- 2.5GB EIDE Mode 4 Hard Drive
- 3.5" 1.44MB Floppy Drive
- STB Velocity 3D w/4MB VRAM
- MAG 17" Digital Monitor (16.1" viewable)
- 33.6 Kbps Fax/Modem w/Voice Mail and Speakerphone
- Toshiba 12X 125ms EIDE CD-ROM Drive
- Ensoniq VIVO-90 32-Bit Wavetable Synthesizer
- Altec Lansing ACS-45 Speakers w/Subwoofer
- Mid-Tower Case
- 104-Key Keyboard With MS PS/2 Mouse
- MS Windows '95 With MS Plus
- Professional Software Bundle (Preinstalled)
- 3-year limited Warranty

QP5/133 SM-2 .....$2099
QP5/200 SM-2 .....$2399

QP6/200 SM-3 $2799

Business lease:$ 98/month

- Intel 200MHz Pentium Pro Processor
- 32MB EDO Memory / 256KB Internal L2 Cache
- 3.2GB EIDE Mode 4 Hard Drive
- 3.5" 1.44MB Floppy Drive
- Matrox MGA Millennium 3D w/4MB WRAM
- MAG 17" Digital Monitor (16.1" viewable)
- 33.6 Kbps Fax/Modem w/Voice Mail and Speakerphone (Add Motorola ISDN Terminal Adapter for $249)
- Toshiba 12X 125ms EIDE CD-ROM Drive
- Ensoniq VIVO-90 32-Bit Wavetable Synthesizer
- Altec Lansing ACS-400 Surround Sound Speakers w /ACS-250 Subwoofer
- ATX Tower Case
- 104-Key Keyboard With MS PS/2 Mouse
- MS Windows '95 With MS Plus
- Professional Software Bundle (Preinstalled)
- 3-year limited Warranty

QP6/180 SM-3 .....$2699

Professional Software Bundle

- Corel WordPerfect Suite: Corel: WordPerfect 7, QuattroPro 7, CorelFlow 3, Presentation 7, Screen Saver, SideKick 95;150 Fonts; Dashboard 95; Envoy 7; Netscape (AT&T WorldNet Services); 10,000 Clip Art Images
- Corel: Internet Mania, Print House
- Quicken SE
- Comptons: Interactive Encyclopedia, Reference Collection
- Resume Designer
- Mecklermedia's Official Internet World™ Internet Yellow Pages
- The Modern Age Books Windows95 Primer
- Key Master Maps
- America Online, Prodigy, CompuServe-(one month trial each)
- NetCruiser Plus (Over 400 hours of free Internet access for one month)
- Microsoft: Internet Explorer 2.0, Phone Telephony Software 1.0

For information on non-multimedia Pentium workstations, consult with your sales representative.

QUANTEX

GOOD CHOICE℠

1.800.896.4898

www.quantex.com

We'll never dessert you.

3 YEAR LIMITED WARRANTY

Our business is built on caring relationships. As a matter of fact, at Quantex, many of our customers are buying from us for the second and third time. Every Quantex computer we sell is backed by our "Quantex Care Package" touting a NEW! 3-year Warranty, one-year parts and labor on-site service* (4-yr on-site warranty from GE is optional), 2 more years limited express parts replacement warranty, a comprehensive 30-Day Money Back Guarantee, and 150 highly skilled reps available to assist you. Quantex is a company you can count on. **So, if you're ready to get down to business, we sure are.** No fluff. No camouflage. No cows. (We promise.) We'll process your order in a snap, or if you want to know more about the finer details of any specific system, we can do that, too. We'll be here--9am 'til midnight weekdays, and 9am-6pm Saturday.

Quantex. We care about you. Good Choice.

QUANTEX

GOOD CHOICE.™

1.800.896.4898

www.quantex.com

© 1996 Quantex Microsystems, Inc. All Rights Reserved. 400B Pierce Street, Somerset NJ 08873. Sales Hours: M-F, 9 am - 12 am - Sat., 9 am - 6 pm (ET). All sales are subject to Quantex's limited warranties and terms and conditions of sale. For details on our warranty or money-back guarantee call or write us. MAG monitor covered by manufacturer's 3-year warranty. Three-year limited warranty includes first year, limited parts and labor. Second and third years, parts-only limited warranty. *On-site service may not be available in certain remote areas, and is available only if determined necessary by technicians. Software titles are subject to change and cannot be substituted. Lease payments based on 36-month term. All prices and configurations are subject to change without notice or obligation and do not include shipping or sales tax. All returned items must have a conspicuous RMA number issued by Quantex and be in original packaging. 30-day money-back policy does not include return freight or original shipping/handling charges. Quantex is not responsible for errors in typography or photography. Pentium, Intel, Intercast and the Intel Inside logo are registered trademarks of Intel. Microsoft, and Windows are registered trademarks of Microsoft Corporation. All other company trademarks are tradenames of each respective company.

Canada 1-800-793-4167

Puerto Rico 1-800-793-4185

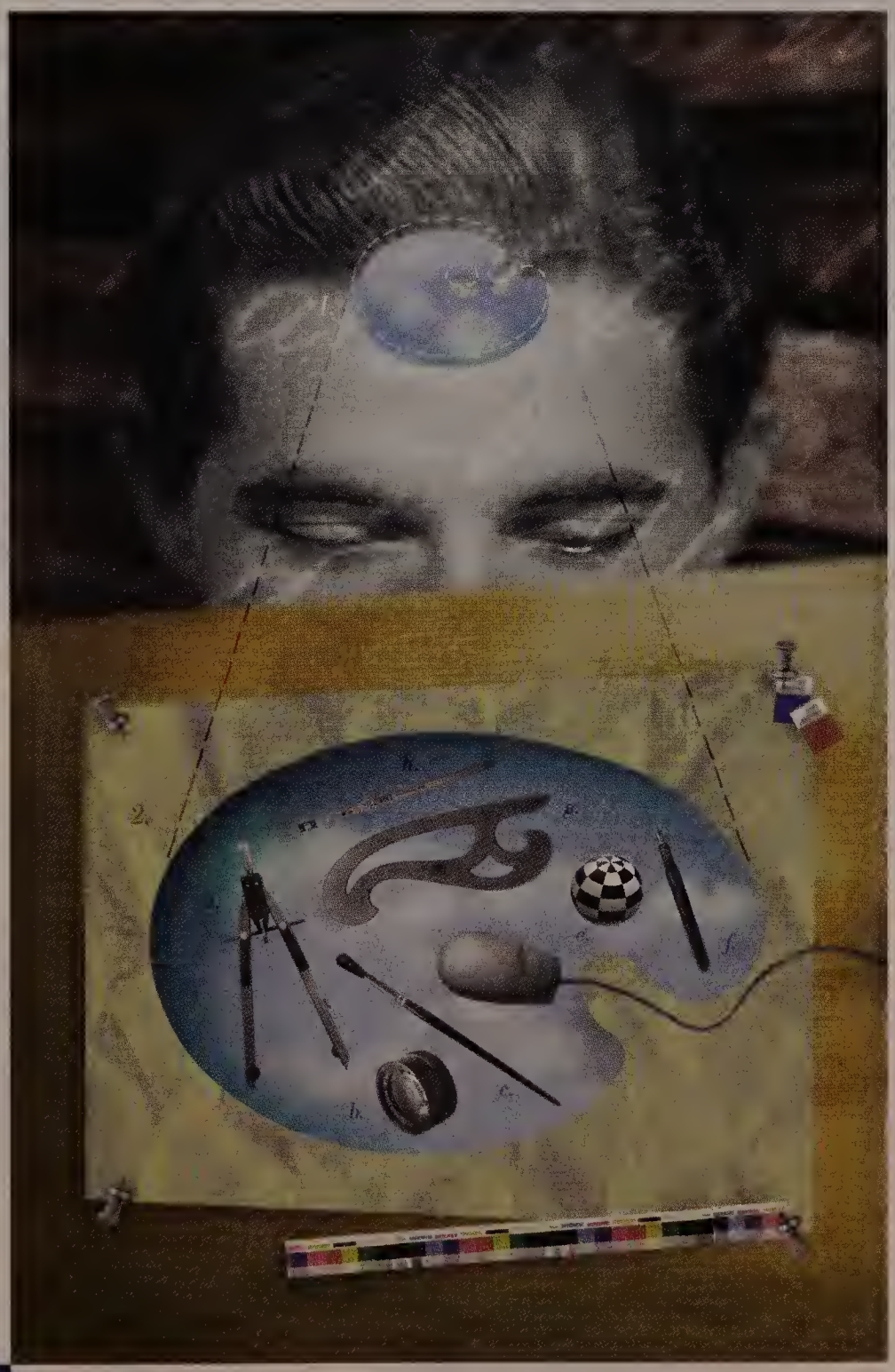
Graphics!

They're CHEAP. They're EASY. And they're GOOD-LOOKING.

Low-cost graphics packages—from clip art to Web utilities—make digital art as easy as a double-click.

IT WAS OSCAR WILDE who sniffed, "All art is quite useless." But he never saw what you can do with some of today's graphics packages. You can mimic Monet; take up chalk, pencil, paint, or crayons; do crazy things with photographs; and build flowcharts painlessly. If you're an artist, graphics software can help you work faster and more creatively. If you're not, a graphics package can make you look like one.

Graphics programs range from simple $50 packages for creating greeting cards to expensive, complex programs for professional illustrators, like Adobe's $895 ▶



BY RICHARD JANTZ

ILLUSTRATION BY STUART BRADFORD

Photoshop. For this review, we picked 12 low-cost Windows 95 graphics programs for nonartists who need to produce professional results quickly for business reports, home projects, or Web pages. Most are under $150 and are very easy to use, thanks to point-and-click interfaces, wizards, and ready-to-use content. Based on the packages' tools and approaches, we divided our reviews into three categories: creative tools, business software, and graphics utilities.

If you've been itching to try your hand at electronic art, the creative tools we recommend here should put you in seventh heaven. These products handhold you through image editing, painting, sketching, and 3-D modeling projects. It was tough to pick a favorite, so we chose two: Kai's Power Goo and Ulead's PhotoImpact, two very different image editors. With its colorful interface and ability to stretch photos, Power Goo at first looks like kids' software. But it's more: It lets you create beautiful surrealistic images. PhotoImpact is a great omnibus application that does not only image editing but also Web art and image management.

Need to knock off some quick-and-dirty graphics for the office? Despite its many imitators, no business graphics package outdoes Visio at meat-and-potatoes art like flowcharts and simple floor plans.

If you keep any image files at all on your hard disk, you should consider buying a graphics utilities package to catalog and view them. HiJaak 95, a junior, $50 version of Quarterdeck's $279 HiJaak Pro, is the best all-around image manager.

Vendors of three packages reviewed—Dabbler 2.0, Poser 1.0, and SmartSketch 95—recommend using a stylus and pressure-sensitive graphics tablet. We got by fine with a mouse, but a stylus and graphics tablet may be worth buying (most cost between $150 and $300) if you'd rather draw with an input device shaped like a pen rather than a bar of soap.

If the products reviewed here are still too expensive for you, you might want to try a shareware graphics program. You can see minireviews and download 12 of our favorites from PC World Online (http://www.pcworld.com).

Our Favorites

EVERY ELECTRONIC ARTIST wanna-be should have Ulead's PhotoImpact, a $99 traditional image editor that also does Web art. HiJaak 95, $50, is the utilities package you don't want to be without if you have to manage more than a few image files. Visio, $149, is great for knocking together quick diagrams. For pure fun, get Kai's Power Goo, a $50 image editor that stretches the boundaries of what you can do with photographs.

Creative Tools

Photo retouching, drawing, and 3-D software make art fun.

DABBLER 2.0

IS ARTIST'S BLOCK stifling your inner van Gogh? Put down the cutlery and pick up Fractal Design's Dabbler 2.0, the second most amazing "natural media" graphics package after Fractal's $379 Painter. A pared-down, simpler version of Painter, Dabbler gives you the tools you need to paint in the style of the great masters. It includes electronic chalks, pencils, crayons, markers, and stencils, more than 120 different paper textures, and filters for adding special effects.

PAINT SPATTERS AND MARKERS SQUEAK In Fractal Design's delightful Dabbler. It uses "natural media" and filters to make your work look like fine art.

Here's the amazing part: The tools respond like traditional art materials. Felt markers bleed, spray paint spatters, and crayon color builds up. Fractal got the sound effects delightfully right, too. The markers squeak, pens scratch, and the charcoal rasps while you draw.

After you're done, you can use the filters for effects that turn your run-of-the-mill picture into a ringer for great art. The Texturize command, for instance, mimics the classic Impressionist style.

Dabbler comes with 100 stock photos and great tutorials, including digital movies that teach drawing. —*Richard Jantz*

Dabbler 2.0 $49 street; Windows 95, Windows 3.1, Macintosh; Fractal Design; 800/297-2665; http://www.fractal.com/

READER SERVICE NO. 630

KAI'S POWER GOO

ANY HALF-DECENT image editing program will let you commit zany acts of art against ordinary photographs, but Kai's Power Goo is in a mischievous league of its own. This offbeat image editing program specializes in real-time photo distortion and blending effects. Just click a button (Bulge, Smear, Smooth, Squeeze, and so on) and drag the mouse over the part of a picture you want to change. Goo's superfast rendering engine (MetaTools calls it "liquid image technology") allows you to see the distortion as you move your

REARRANGE SOMEBODY'S FACE with Kai's Power Goo, a playful image editor that does real-time photo distortion.

mouse, so you know just how far to go to get the effect you want. No other image editor does anything like it.

Power Goo lets you print edited images or save them in BMP or Photoshop PSD formats, but you'll need another program to convert them into JPEG or GIF format for posting on a Web page. You can also save a series of pictures to create a brief, morph-like movie in the AVI video format or in MetaTools' proprietary format. Power Goo comes with a minilibrary of 80 stock photos (people, animals, objects) so you can get off to a fast, gleeful start. —*R. J.*

Kai's Power Goo $50 street; Windows 95, Windows NT, Macintosh; MetaTools Inc.; 805/566-6200; http://www.metatools.com

READER SERVICE NO. 631

CREATE YOUR OWN Internet graphics like this button—or bullets, logos, and backgrounds—using PhotoImpact's new built-in Web tools.

PHOTODELUXE 1.0

IF YOU WOULD RATHER touch up photos than distort them, a more traditional image editing program like PhotoDeluxe might suit you better than Power Goo. PhotoDeluxe is Photoshop without all the confusing palettes and color separation tools. Think "Photoshop for Dummies." PhotoDeluxe takes a handful of Photoshop's most useful features and wraps them in tabs and step-by-step wizardlike procedures for foolproof image editing. I found many of its photo touch-up and transformation projects useful for adult beginners—Remove Red Eye, for instance, turns a process that can be confusing in Photoshop into one simple, can't-miss step. Other projects, like Disguise Your Face—which adds glasses and moustache to a photo—will appeal mostly to kids. Fortunately, you can skip the hand-holding and jump right to the manipulation tools and effects you want.

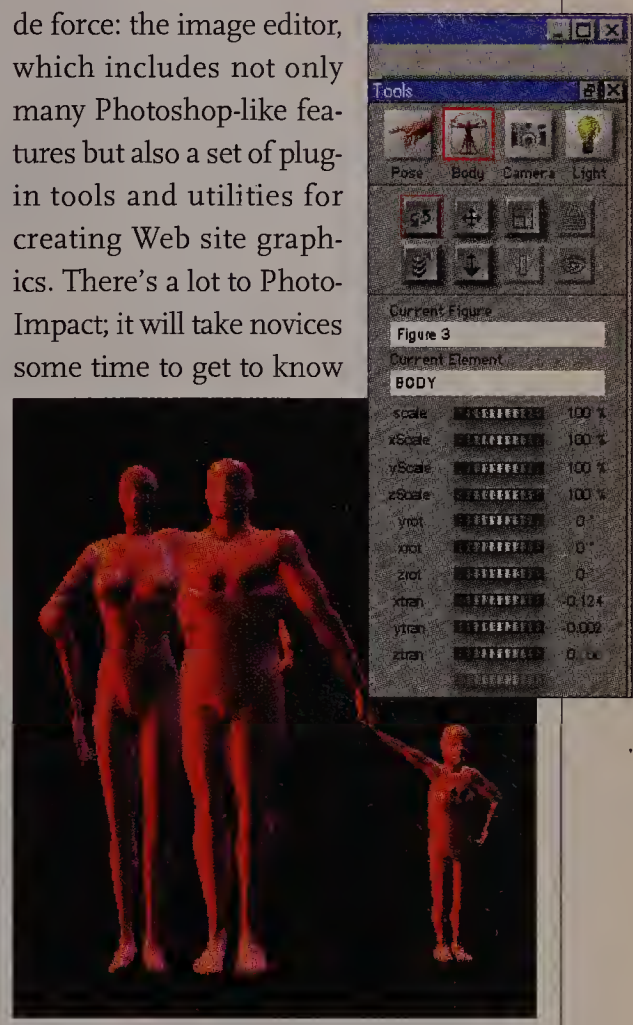
In addition to editing your own images, you can work with the 500-plus stock photos and clip art images that are included in the package, ranging from people and animals to backgrounds and scenic views. PhotoDeluxe also provides templates that make it easy to add your images to report covers, cards, calendars, flyers, signs, and other print projects. —*R. J.*

PhotoDeluxe 1.0 $49 street; Windows 95, Windows 3.1, Windows NT; Adobe Systems; 800/888-6293; http://www.adobe.com

READER SERVICE NO. 632

PHOTOIMPACT 3.01 WITH WEBEXTENSION

IF YOU'RE going to buy only one graphics package this year, Ulead Systems' PhotoImpact 3.01 is a good choice—especially if you need to create Web graphics. Unlike Power Goo or PhotoDeluxe, PhotoImpact is a fairly sophisticated mini-graphics suite. In one box, it provides powerful image editing, viewing, cataloging, browsing, and screen capture software. PhotoImpact's image management tools are not as fast or as convenient as those in HiJaak 95 (see review in the Graphics Utilities section), but its creative tools are much better. PhotoImpact's tour de force: the image editor, which includes not only many Photoshop-like features but also a set of plug-in tools and utilities for creating Web site graphics. There's a lot to PhotoImpact; it will take novices some time to get to know all the features. Fortunately, the package comes with lots of hand-holding and a helpful tutorial. For instance, Guided Workflow Tools direct you step-by-step from image acquisition through image enhancement. —*R. J.*



MEET THE POSER FAMILY of malleable 3-D figures. You can set height and weight, and twist and turn them to your heart's content.

PhotoImpact 3.01 With WebExtension $99 street; Windows 95, Windows NT; Ulead Systems, Inc.; 800/858-5323, 310/523-9393; http://www.ulead.com

READER SERVICE NO. 633

PHOTODELUXE IS AN EXTREMELY EASY-TO-USE version of Photoshop; it's impossible to get lost—or too creative.

POSER 1.0

MOM ALWAYS SAID she liked your stick figures, but she won't be at tomorrow's presentation. To put recognizably ▶

human figures into your artwork, try Fractal Design's Poser. It helps you create lifelike 3-D people in no time at all. You start with a male form (the default) in the da Vinci pose, with feet together and arms outstretched. To reposition the figure, you simply grab a limb or other part of the body and drag it to where you want it to go. As you move one part, the rest of the body moves right along with it. For example, when you move a leg to a new position, voilà—the hips and torso follow. All I really had to practice getting right was joints.

SMARTSKETCH'S "paint" tools actually produce vector-based drawings.

It's a little difficult to reposition elbows, wrists, knees, and ankles with a mouse. For greater precision you can use the Parameter Dials dialog box, like I did, or a graphics tablet.

The program comes with predefined poses you can easily apply. You can also store your own poses for future use. One picture can contain multiple bodies, each of which can be a different sex, age, height, and weight. Poser people appear unclothed by default, but prudes can add what appear to be bodysuits, giving the images an android look. When you're done, you can export your figures in BMP, TIF, DXF, or RIB formats and work with them in your favorite draw program. By the time you read this, Poser 2.0 should be out, with animation and even more realistic figures. —*Cathy Kenny*

Poser 1.0 $99 street; Windows 95, Windows NT, Windows 3.1, Macintosh; Fractal Design; 800/297-2665; http://www.fractal.com/

READER SERVICE NO. 634

SMARTSKETCH 95

WHEN CLIP ART WON'T CUT IT, it's easy to create something unique in SmartSketch 95. But you'll need some artistic chops to pull it off. SmartSketch has an inviting interface, great tutorials, and "intelligent" helpers that automatically straighten lines and smooth curves. After that, however, you're all alone with SmartSketch's pencils and brushes. ▶

Graphics Suites Have It All

GRAPHICS SUITES are to designers what office suites are to businesspeople. In one bundle you can buy a larger variety of graphics tools than you'll get from a single, stand-alone package. The three best graphics suites—Corel Graphics Pack, CorelDraw 7, and Micrografx's ABC Graphics Suite 95—have draw and paint programs, graphics utilities, and a generous amount of clip art. But if you decide to go with any of these suites, you'll need a Ponderosa-size hard drive. Basic installations alone require 80MB, 85MB, and 180MB, respectively.

Budget Suites. If money is tight, consider the $100 Corel Graphics Pack, a bargain-basement suite with a wizardlike main menu. The package's Corel Photo Paint 6 image editing application is about as good as any of the stand-alone versions we review here. CorelFlow 3 is for business diagrams, and Corel Presents 6 is for presentations.

Micrografx's ABC Graphics Suite, $150, includes a higher-end draw program than Corel Graphics Pack, and the interface design it shares with Microsoft Office 95 makes it a wise choice for users of that suite. Designer 6 is an easy-to-use draw program that boasts good technical drawing tools but not the advanced color handling and editing tools found in CorelDraw. ABC also has Picture Publisher 6, an image editing program on a par with Corel Photo Paint 6; ABC FlowCharter 6 for creating diagrams; and ABC Media Manager 6 for managing files.

BEST LOW-COST graphics suite: Corel Graphics Pack. It has draw and paint modules, wizards, and clip art.

GRAPHICS SUITES give you more software for your money than stand-alone packages, but they take up a lot of disk space.

Everything but the Kitchen Sink. CorelDraw is the most popular graphics suite on the market, as well as one of the most expensive. As we went to press, Corel was preparing to ship CorelDraw 7, with an expected street price of $575. The package should be faster than the current version 6, with a new interface and beefed-up draw and paint programs. Besides its complex and powerful draw program—which is also called CorelDraw—the suite includes Corel Photo Paint 7, Corel Multimedia Manager, Corel Dream 3-D, and Corel Motion 3-D, plus a gargantuan library of clip art images, media clips, and fonts. It's the best pick for anyone who needs professional tools, such as color separations.

ABC Graphics Suite 95 $150 street; Micrografx, Inc.; 800/676-3110, 214/234-1769; http://www.micrografx.com

READER SERVICE NO. 642

CorelDraw 7 $575 street, Corel Graphics Pack $100 street; Corel Corp.; 800/772-6735, 613/728-8200; http://www.corel.com

READER SERVICE NO. 643

SMALLER
footprint

LOWER
OPERATING COSTS

Call For Our
FREE
30-Day Trial!

ynamite
DUPLEXING

"Give Me One Good Reason Why I Should Switch To Kyocera Printers."

nice
price

higher quality

easier
network management

Better
Service And Support

HALF
THE COST-PER-PAGE

Kyocera offers a broad range of FS-Series + printers:

- 600 dpi
- 10 and 18 ppm
- SNMP support
- Cartridge-free
- Multiprotocol support
- Modular paper-handling
- Duplexing
- 15-bin sorter with mailbox option
- Energy Star compliant
- Compact design

Introducing the new line of FS Series+printers from Kyocera®. They're easier to manage, more advanced and more reliable than ever. That's why so many people are switching to Kyocera page printers.

Call 1-800-232-6797, Dept. 1016 To Apply For A Free 30-Day Trial.*

Call today and find out why Kyocera is the new force in network and workgroup printers.

KYOCERA

Designed for Microsoft Windows 95

ECOSYS

©1996 Kyocera Electronics, Inc. Kyocera is a registered trademark of Kyocera Corporation. Energy Star does not represent EPA endorsements of any product or service. All other product or service names mentioned herein may be trademarks or registered trademarks of their respective owners. *Free to qualified respondents.

Circle 127 on reader service card

SmartSketch 95 looks like a combination draw and paint package, but it's actually all vector based. That means the program treats each element—whether painted or drawn—as a selectable object that you can move, resize, copy, or delete. As flexible as SmartSketch is, you'll still need a little time to learn how to use it proficiently, so don't expect to pump out a perfect logo in your first session. Fortunately, you can undo up to 200 steps, a nice security blanket for trial-and-error disasters. —*R. J.*

SmartSketch 95 $60 street; Windows 95, Windows NT, Windows 3.1, Macintosh; FutureWave Software, Inc.; 800/619-6193, 619/637-6190; http://www.futurewave.com/sales.htm

READER SERVICE NO. 635

3D F/X 2.0

FROM HOLLYWOOD BLOCKBUSTERS to TV commercials, three-dimensional computer animation is the next big graphics frontier. With Asymetrix's 3D F/X, you don't need a lot of expertise or expensive software to create your own 3-D action. A drag-and-drop interface and a generous collection of high-quality, ready-made 3-D objects (ranging from a '64 Thunderbird to Rodin's *Thinker*) makes 3D F/X easy to use. Guided by superb on-screen help, you can create a polished still picture or animated clip in minutes by assembling a few objects and adding textures and lighting effects. You can also turn any TrueType font into a colorful, spinning 3-D logo—a surefire way to spice up a ho-hum business presentation. And image quality is tops: The program can render your creations at any resolution, in up to 16 million colors, with realistic shadows and reflections. If you're making your first foray into 3-D animation, you can't miss with 3D F/X. —*Harry McCracken*

CREATING SLICK 3-D SCENES is a snap with 3D F/X's ready-made 3-D objects and drag-and-drop tools.

3D F/X 2.0 $70 street; Windows 95, Windows NT; Asymetrix; 206/462-0501; http://www.asymetrix.com/

READER SERVICE NO. 636

Business Software

Visio and WordPower produce boardroom-quality graphics.

VISIO 4.0

VISIO CORP.'S VISIO 4.0 makes creating a business diagram as easy as building a cabin out of Lincoln Logs, and almost as enjoyable. It's the best choice for creating flowcharts, block diagrams, organizational charts, office layouts, directional maps, and other common business drawings. Visio was first to popularize drag-and-drop charting through its use of stencils—templates filled with predrawn shapes and connectors. It's also a pioneer of "intelligent" lines and objects that automatically stay linked when you move, resize, and edit them. Version 4.0 adds wizards that automatically generate page layouts, organizational charts, and timelines. Visio also provides basic drawing tools for creating your own shapes and freehand drawings. Editing any part of a diagram is a snap—just right-click an object for instant access to its properties and formatting options. —*R. J.*

MAKE FLOOR PLANS with elements that stick together, even when you move or resize them, using Visio 4.0.

Visio 4.0 $149 street; Windows 95, Windows NT, Windows 3.1; Visio Corp.; 800/248-4746; http://www.visio.com/

READER SERVICE NO. 637

ASAP WORDPOWER 1.95

EVER NOTICE that most presentations contain only words? For people who don't care about adding multimedia to their talks, there's Software Publishing's ASAP WordPower, a speedy application devoted to quick and easy word charts. ASAP is no PowerPoint or Freelance Graphics. It's a retro utility that has no multimedia features, no built-in drawing tools, and no charting features. But what ASAP does it does well. With 22 layouts, 14 designs, and 18 color schemes, you can create thousands of different looks for your nongraphical, text-based charts. —*R. J.*

FAST, PUNCHY TEXT-BASED shows are ASAP WordPower's specialty. Change the layout or color scheme with one click.

ASAP WordPower 1.95 $99 street; Windows 95, Windows NT, Windows 3.1; Software Publishing Corp.; 800/336-8360; http://www.spco.com

READER SERVICE NO. 638

HYUNDAI 15" AND 17" MONITORS CAPTURE YOUR PERSONAL PREFERENCES WITH PICTURE-PERFECT MEMORY!

TOTAL RECALL

UNFORGETTABLE COLOR IS YOURS ON THE FIRST TAKE WITH HYUNDAI DELUXSCAN® 15" (13.8V) AND 17" (15.8V) DIGITAL MONITORS. SET THE INTENSITY ONCE WITH ON-SCREEN DIGITAL CONTROLS AND INSTANT PREVIEW. PRESTO! TOTAL RECALL OF YOUR DISPLAY PREFERENCES. PLUS, HYUNDAI MONITORS ALLOW YOU TO ADJUST GEOMETRIC CONTROLS FOR EDGE-TO-EDGE IMAGING. AND HIGH RESOLUTION. ALL AT POPULAR PRICES — LESS THAN SIMILAR MONITORS WITH THESE FEATURE ATTRACTIONS. SEE FOR YOURSELF WHY NOTHING OUTSHINES A HYUNDAI MONITOR FOR TOTAL CONTROL AND TOTAL VALUE. CALL (800) 568-0060.

RETAILED BY

MICROAGE COMPUTER CENTERS 800-232-3369 INSIGHT DIRECT 800-546-0565 PC ZONES 800-258-0270 HE01

HYUNDAI
DeluxScan® Monitors

©1996 Hyundai Electronics America 800.568.0060 Fax 408.232.8146 Web: www.hea.com DeluxFacts FaxBack Service 800.501.4986

Circle 110 on reader service card

Graphics Utilities

Helper applications make graphics chores go more quickly.

COREL WEB.GALLERY

IF INSOMNIACS are hitting your Web site for some relief, maybe it's the graphics. You can put pizzazz into your pages with Corel Web.Gallery, a single CD-ROM of 7500 "Internet-ready" images (translation: files in GIF or JPEG format). Besides backgrounds, buttons, banners, drop caps, and dividers, the disc contains clip art and photo images of things such as food, flags, computers, travel, sports, transportation, and signs. You can sort the contents of Web.Gallery by category. Once you spy an image you want, you can drag and drop it to another application or copy it to your hard drive, compressing it if you like. You can also export images in a variety of file formats. —*C. K.*

Corel Web.Gallery $79 street; Windows 95, Windows 3.1; Corel Corp.; 800/772-6735, 613/728-8200; http://www.corel.com

READER SERVICE NO. 639

GET USEFUL THUMBNAILS of graphics files as well as handy file conversion tools with HiJaak 95.

HIJAAK 95

QUARTERDECK'S HIJAAK 95 is the graphics utility that should have come with Windows 95. The yardstick by which all other file conversion and screen capture utilities are measured, HiJaak lets you view and manage more than 75 different file formats. If you need to convert lots of graphics files from one format to another, this program's batch conversion option is a godsend. Its versatile screen capture features are also useful. But what really makes HiJaak shine is what it adds to Windows 95. Say good-bye to the generic icons Windows uses to display graphics files. HiJaak displays thumbnails of the images, so you can see what's in a file without having to open it. —*R. J.*

HiJaak 95 $50 street; Windows 95 only; Quarterdeck Corp.; 800/683-6696; http://www.quarterdeck.com/

READER SERVICE NO. 640

PHOTODISC DIGITAL STOCK PHOTOGRAPHY

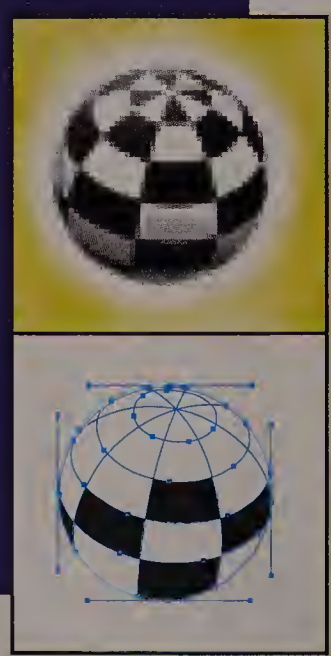
YOU WANT MONDO TRENDO photos for your next presentation but can't afford to hire Annie Leibovitz? No sweat, thanks to the boom in affordable stock photos on CD-ROM. PhotoDisc, preeminent digital stock photo vendor, sells a humongous library of more than 20,000 images on 84 different discs. Each covers topics such as agriculture, architecture, backgrounds, landscapes, fine art, and business occupations. You'll find high-quality photographs of everything from Model Ts and gramophones to space shuttles and fiber optics, from barbers and bankers to butterflies. PhotoDisc's images are royalty-free—as long as you don't put them on a product for sale. For commercial uses, you need permission and a license from PhotoDisc. —*R. J.*

PhotoDisc Digital Stock Photography $149 to $299 per CD-ROM (list); Windows 95, Windows NT, Windows 3.1; PhotoDisc Inc.; 800/528-3472, 206/441-9355; http://www.photodisc.com

READER SERVICE NO. 641

Find the files from this article at http:// www.pcworld.com. Richard Jantz is a freelance writer in Kensington, California. Cathy Kenny is a freelance writer on personal productivity software. Harry McCracken is a senior associate editor for PC World.

For more information about all products in this article, circle reader service no. 904. ■



BIT MAPS HAVE AN artistic look (top). The vector version of this globe is a collection of smooth lines.

You Say Bit Map, I Say Vector

YOU MAY HEAR some graphics programs described as vector based and others referred to as bit mapped, or raster. Which is better? It depends. If you're retouching photos or other scanned images and want to create an artistic, "painted" look, get a bit-mapped paint or image editing program like Dabbler or PhotoDeluxe. These types of packages let you edit the thousands of bits, or dots, in a scanned image and apply special effects that can turn an ordinary photograph into a work of art. The tools are fun, but file size is a drawback: A bit-map image is much larger than the same image produced in vectors. Vector-based images, on the other hand, are composed of distinct objects—curves, lines, circles, squares, rectangles, and such. You can easily pick, move, and resize these parts, unlike the dots in a bit-map image. Design and illustration packages produce vector graphics. These packages are better than bit-mapped graphics programs for creating smooth graphics printed at a high resolution—logos, charts, diagrams, and other common office graphics—and therefore are often preferred by business users.

SmartSketch is an anomaly: It disguises its vector tools as bit-map ones to give you the best of both worlds—fun tools that produce easy-to-manipulate art.

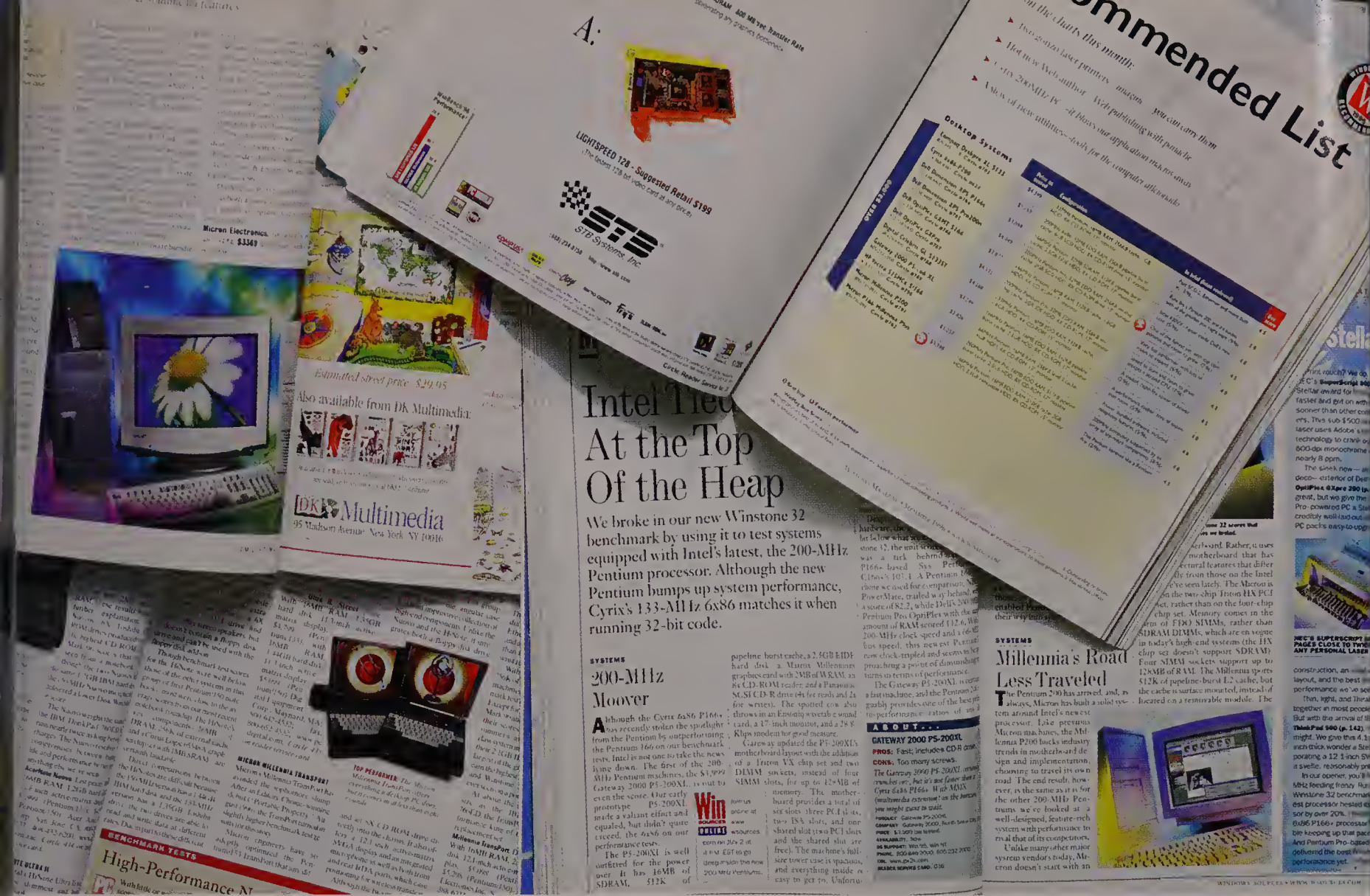
THE
REVIEWS
ARE IN...
MICRON
ELECTRONICS, INC.

WE THINK YOU'LL AGREE

Micron is the superior choice.

In the past year, Micron Electronics has won nearly a hundred awards for product performance, customer service and support.

intel inside pentium PROCESSOR



DISCOVER FOR YOURSELF WHY MICRON KEEPS RECEIVING ACCLAIM.

Any PC maker can claim to offer a solution that covers your needs. But at Micron Electronics™, we prefer to let our history and our products speak for themselves. We think you'll agree it's an impressive story.

Superior Manufacturing—A Micron Tradition

Micron builds PCs with a legacy of excellence. Our manufacturing processes grew out of nearly two decades in the semiconductor business, where precision is measured in millionths of an inch, and quality in parts per million. We've built strategic relationships with companies like Intel, Microsoft and Novell. From this solid background, we're forging unbeatable systems you can count on today and tomorrow.

Award-Winning Products

In the past two years, leading industry publications have applauded Micron PCs with more than 170 awards for product performance, customer service and support. This includes *PC Magazine*'s Best Products of 1995 and Editors' Choice awards in several categories. Add more than 40 *PC World* Best Buy awards and you've got an impressive technology hall of fame.

Recognized Service and Reliability

After your purchase, the story continues. Just ask *PC Magazine* readers. They bestowed on us the coveted Readers' Choice for Customer Service and Reliability in 1994 and 1995. And *PC World* recently awarded us first-tier status along with the likes of Apple, Compaq, Digital and HP. Pretty good company, wouldn't you say?

Micron Power℠ Warranty—An Industry First

We support our reliability promise with the industry-leading Micron Power warranty. It backs the microprocessor and main memory for five years, an industry first. Add a three-year, parts-only system warranty and a 30-day money-back guarantee, and you can rest assured that you're in good hands.

Outstanding Performance—Don't Take Our Word for It.

Talk is cheap when you're speaking for yourself. But when it's from the mouth of an industry expert, it carries weight. Here are a few of many examples of what they're saying about Micron PCs:

Micron Home MPC™	*". . . the fastest we've ever tested . . . as well as a marvelous family package . . . it wins our Top Rated award . . . ."*	—***Family PC,*** **May 1996**
Micron Millennia™	*"In short, Micron covers all the bases with this Best Buy"*	—***PC World,*** **March 1996**
Micron PowerServer™	*"This is definitely a best buy"*	—***Computer Shopper,*** **January 1996**
Micron Millennia TransPort™	*"...nearly a dead ringer for IBM's ThinkPad... but performs better and saves you about $2,500."*	—***PC Magazine,*** **April 1996**

The Right System for You

Micron makes a suite of outstanding solutions designed for the way you work or play. From home systems to servers, desktop PCs to portable multimedia solutions, Micron always comes through with a system built to satisfy. For details and prices, turn the page.

Micron Power℠ Warranty & Support

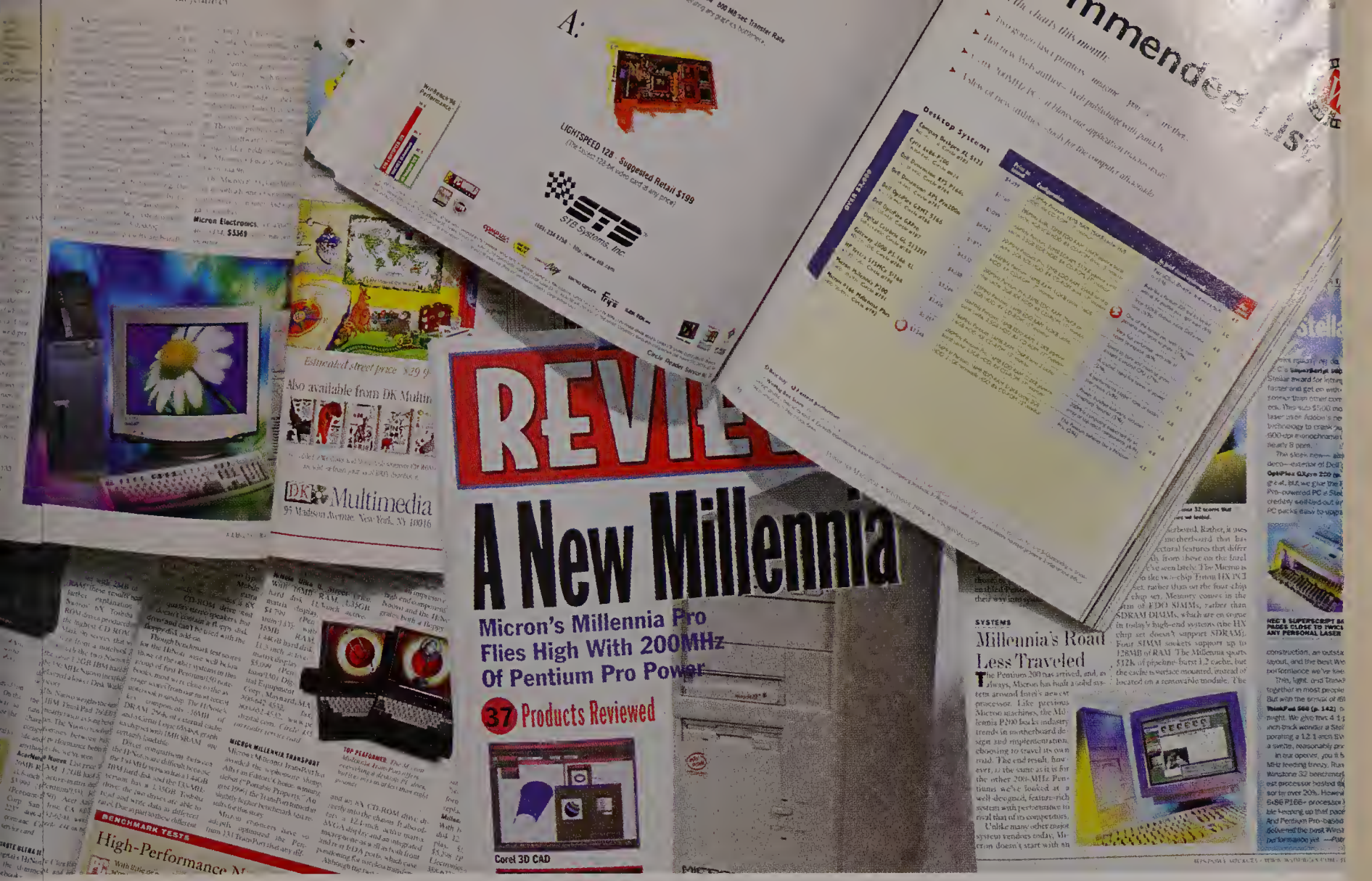
- 5-year limited warranty on microprocessor and main memory
- 3-year limited parts-only system warranty
- 1-, 2- or 3 year optional on-site service agreement for Micron desktop and server systems
- 30 days of free Micron-supplied software support for Micron desktop systems; 3 optional network operating system incident resolutions included for Micron server systems
- 30-day money-back policy
- 24-hour technical support

The foregoing is subject to and qualified by Micron's standard limited warranties and terms and conditions of sale. Terms and conditions of sale may vary for specific configurations. Copies of the limited warranties may be obtained on our Web site or by calling Micron.

MICRON™
ELECTRONICS, INC.

800-249-1176

http://www.mei.micron.com



SUPERIOR DESKTOP SOLUTIONS

Millennia™ P200

With Intel 133MHz Pentium processor ..... subtract $300
With Intel 166MHz Pentium processor ..... subtract $100

- Intel 200MHz Pentium® processor
- 512KB pipeline burst cache, flash BIOS
- 12X EIDE CD-ROM drive, 3.5" floppy drive
- 16-bit stereo sound & speakers
- PCI 64-bit 3D video, MPEG, 4MB EDO RAM
- Tool-free minitower or desktop
- Microsoft® Mouse, 104-key keyboard
- Microsoft Windows® 95 & MS® Plus! CD
- 5-year/3-year Micron Power™ warranty

- **16MB EDO RAM**
  - 1.6GB EIDE hard drive
  - 15" Micron 15FGx, .28dp (13.7" display)
  - Microsoft Works 95 CD
  - **$1,999** Bus. lease $68/mo.
- **32MB EDO RAM**
  - 2.5GB EIDE hard drive
  - 15" Micron 15FGx, .28dp (13.7" display)
  - Microsoft Office Pro 95 & Bookshelf® 95 CDs
  - **$2,299** Bus. lease $78/mo.
- **64MB EDO RAM**
  - 3.1GB EIDE hard drive
  - 17" Micron 17FGx, .26dp (15.8" display)
  - Microsoft Office Pro 95 & Bookshelf 95 CDs
  - **$2,899** Bus. lease $99/mo.

Millennia™ P200 Plus

With Intel 166MHz Pentium processor ..... subtract $100

- Intel 200MHz Pentium processor
- 512KB pipeline burst cache, flash BIOS
- PCI 32-bit Ultra SCSI Fast-2D controller
- 12X SCSI CD-ROM drive, 3.5" floppy drive
- 16-bit stereo sound & speakers
- PCI 64-bit 3D video, MPEG, 4MB EDO RAM
- Tool-free minitower or desktop
- Microsoft Mouse, 104-key keyboard
- Microsoft Windows 95 & MS Plus! CD
- 5-year/3-year Micron Power warranty

- **16MB EDO RAM**
  - 2GB Ultra SCSI hard drive
  - 15" Micron 15FGx, .28dp (13.7" display)
  - Microsoft Works 95 CD
  - **$2,699** Bus. lease $92/mo.
- **32MB EDO RAM**
  - 4GB Ultra SCSI hard drive
  - 15" Micron 15FGx, .28dp (13.7" display)
  - Microsoft Office Pro 95 & Bookshelf 95 CDs
  - **$3,199** Bus. lease $109/mo.
- **64MB EDO RAM**
  - 9GB Fast SCSI-2 hard drive
  - 17" Micron 17FGx, .26dp (15.8" display)
  - Microsoft Office Pro 95 & Bookshelf 95 CDs
  - **$4,799** Bus. lease $163/mo.

FAMILY MULTIMEDIA SOLUTIONS

Home MPC™ P133

With Intel 166MHz Pentium processor ..... add $200

- Intel 133MHz Pentium® processor
- 512KB pipeline burst cache, flash BIOS
- **16MB EDO RAM**
- 1.6GB EIDE hard drive
- 12X EIDE CD-ROM drive, 3.5" floppy drive
- 16-bit stereo sound & speakers
- 28.8 fax/modem, speakerphone, voice mail
- Microsoft® Phone telephony software
- Internet ready:
  Free 1 month Spry™ Internet access, Microsoft Internet Explorer™ 3.0
- Prodigy®, America Online® & CompuServe® trial memberships
- PCI 64-bit 3D video, MPEG, 2MB EDO RAM
- 15" Micron 15FGx, .28dp (13.7" display)
- *Tool-free* minitower or desktop
- Microsoft Mouse, 104-key keyboard
- Microsoft Windows® 95 & MS® Plus! CD
- Quicken® Financial Pak includes: Quicken Deluxe 5.0, Quicken Financial Planner™, Quicken Parents' Guide to Money™ and Quicken Family Lawyer™
- Family Pak includes: ABC by Dr. Seuss, Thinkin' Things™ Collection 1, Earthworm Jim™ and Mechwarrior® 2
- Microsoft Home Pak includes: Works 4.0, Publisher Deluxe, Encarta® Encyclopedia, Monster Truck Madness, CD sampler, plus more!
- 5-year/3-year Micron Power warranty

$1,899

Home MPC™ P200

With Intel 166MHz Pentium processor ..... subtract $100

- Intel 200MHz Pentium processor
- 512KB pipeline burst cache, flash BIOS
- **32MB EDO RAM**
- 2.5GB EIDE hard drive
- 12X EIDE CD-ROM drive, 3.5" floppy drive
- 16-bit 3D Wavetable stereo sound card
- Advent® AV27D 2x25 watt stereo speakers
- 28.8 fax/modem, speakerphone, voice mail
- Microsoft Phone telephony software
- Internet ready:
  Free 1 month Spry Internet access, Microsoft Internet Explorer 3.0
- Prodigy, America Online & CompuServe trial memberships
- PCI 64-bit 3D video, MPEG, 2MB EDO RAM
- 17" Micron 17FGx, .26dp (15.8" display)
- *Tool-free* minitower or desktop
- Microsoft Mouse, 104-key keyboard
- Microsoft Windows 95 & MS Plus! CD
- Microsoft Office Pro 95 & Bookshelf® 95 CDs
- Quicken Financial Pak includes: Quicken Deluxe 5.0, Quicken Financial Planner, Quicken Parents' Guide to Money and Quicken Family Lawyer
- Family Pak includes: ABC by Dr. Seuss, Thinkin' Things Collection 1, Earthworm Jim and Mechwarrior 2
- Microsoft Home Pak includes: Works 4.0, Publisher Deluxe, Encarta Encyclopedia, Monster Truck Madness, CD sampler, plus more!
- 5-year/3-year Micron Power warranty

$2,899

PC WORLD December, 1996 · PC MAGAZINE BEST OF 1995 January 9, 1996 Millennia Line · PC MAGAZINE EDITORS' CHOICE June 25, 1996 Millennia P166 · PC MAGAZINE EDITORS' CHOICE June 25, 1996 Millennia P133 · PC MAGAZINE EDITORS' CHOICE May 30, 1995 Millennia P120 · PC MAGAZINE EDITORS' CHOICE August 4, 1996 Millennia TransPort P133 · PC WORLD October, 1996 Millennia P133 · PC WORLD October, 1996 Millennia P200 · PC WORLD January, 1996 Home MPC P90 · PC Computing THE A LIST January, 1996 Millennia P133 · PC Computing December, 1995 Millennia P133

SERVER SOLUTIONS

Vetix™ EL 1000N

With Sony 4/8GB DDS-2 SCSI DAT tape back-up drive .....add $999
*Vetix EL 1000 and 2000 models available with Microsoft Windows NT Server. Call for pricing.

- Intel 200MHz Pentium® Pro processor
- Dual Pentium Pro ZIF sockets
- 256KB L2 cache, flash BIOS
- Memory upgradable to 512MB
- Slots: 1 ISA, 3 PCI, 1 shared PCI/ISA
- Adaptec® PCI 32-bit Ultra SCSI Fast-20 controller
- 12X SCSI-2 CD-ROM drive, 3.5" floppy drive
- **64-bit 1MB ISA video**
- 3Com® 3C595 Fast EtherLink® PCI 10/100 NIC (RJ-45)
- Full-size tower with 10 drive boys
- 15" Micron 15FGx, .28dp (13.7" display)
- Microsoft® Mouse, 104-key keyboard
- Novell® NetWare® 4.X (5 user license)
- NOS support (3 resolutions)
- 5-year/3-year Micron Power℠ warranty

- **32MB ECC RAM**
- 2GB Ultra SCSI hard drive

$4,499* Bus. lease $153/mo.

- **64MB ECC RAM**
- 4GB Ultra SCSI hard drive

$4,999* Bus. lease $170/mo.

Vetix™ EL 2000N

With Sony 4/8GB DDS-2 SCSI DAT tape back-up drive .....
*Vetix EL 1000 and 2000 models available with Microsoft Windows NT Server.

- Dual Intel 200MHz Pentium Pro processors
- 256KB L2 cache, flash BIOS
- Memory upgradable to 512MB
- Slots: 1 ISA, 3 PCI, 1 shared PCI/ISA
- Adaptec PCI 32-bit Ultra SCSI Fast-20 controller
- 12X SCSI-2 CD-ROM drive • 3.5" floppy drive
- **64-bit 1MB ISA video**
- 3Com 3C595 Fast EtherLink PCI 10/100 NIC (RJ-45)
- Full-size tower with 10 drive boys
- 15" Micron 15FGx, .28dp (13.7" display)
- Microsoft® Mouse, 104-key keyboard
- Novell NetWare 4.X (5 user license)
- NOS support (3 resolutions)
- 5-year/3-year Micron Power warranty

- **64MB ECC RAM**
- 4GB Ultra SCSI hard drive

$5,7 Bus. leas

- **128MB ECC RAM**
- 9GB Fast SCSI-2 hard drive

$6,9 Bus. leas

CORPORATE NETWORK SOLUTIONS

ClientPro™ P120

With Intel 133MHz Pentium processor .....add $50

- Intel 120MHz Pentium® processor
- 256KB pipeline burst cache, flash BIOS
- 16MB EDO RAM
- 3Com® 3C509 ethernet ISA NIC (BNC, AUI & RJ-45)
- 3.5" floppy drive
- **PCI 64-bit graphics accelerator, 2MB EDO RAM**
- *Tool-free* minitower or desktop
- Microsoft® Mouse, 104-key keyboard
- MS-DOS® 6.22/Windows® for Workgroups 3.11
- Microsoft Works preinstalled
- 5-year/3-year Micron Power℠ warranty

- 1.2GB EIDE hard drive
- 14" Micron 14FGx, .28dp (12.9" display)

$1,499 Bus. lease $51/mo.

- 2.1GB EIDE hard drive
- 15" Micron 15FGx, .28dp (13.7" display)

$1,699 Bus. lease $58/mo.

ClientPro™2 180

- Intel 180MHz Pentium® Pro processor
- 256KB internal cache, flash BIOS, DMI support
- 3Com 3C509 ethernet ISA NIC (BNC, AUI & RJ-45)
- **PCI 64-bit graphics accelerator, 2MB EDO RAM**
- 3.5" floppy drive
- *Tool-free* minitower or desktop
- Microsoft® Mouse, 104-key keyboard
- Microsoft Windows NT® Workstation 4.0
- 5-year/3-year Micron Power warranty

- **16MB EDO RAM**
- 1.2GB EIDE hard drive
- 15" Micron 15FGx, .28dp (13.7" display)
- Microsoft Works preinstalled

$1,9 Bus. lea

- **32MB EDO RAM**
- 2.1GB EIDE hard drive
- 15" Micron 15FGx, .28dp (13.7" display)
- Microsoft Office Pro 95

$2,2 Bus. lea

- **32MB EDO RAM**
- 3.1GB EIDE hard drive
- 17" Micron 17FGx, .26dp (15.8" display)
- Microsoft Office Pro 95

$2,5 Bus. lea

HIGH-PERFORMANCE SOLUTIONS

Millennia™ Pro2 180

With 2nd Intel 180MHz Pentium Pro processor .....add $599*
With Microsoft Windows NT Workstation 4.0 CD .....add $99
*Second processor requires Microsoft Windows NT Workstation 4.0

- Intel 180MHz Pentium® Pro processor
- Supports dual Intel 180MHz Pentium Pro processors
- 256KB internal cache, flash BIOS
- 12X EIDE CD-ROM drive, 3.5" floppy drive
- 16-bit stereo sound & speakers
- **PCI 64-bit 3D video, MPEG, 4MB EDO RAM**
- *Tool-free* minitower or desktop
- Microsoft® Mouse, 104-key keyboard
- Microsoft Windows® 95 & MS® Plus! CD
- 5-year/3-year Micron Power℠ warranty

- **16MB EDO RAM**
- 2.5GB EIDE hard drive
- 15" Micron 15FGx, .28dp (13.7" display)
- Microsoft Works 95 CD

$2,199 Bus. lease $75/mo.

- **32MB EDO RAM**
- 3.1GB EIDE hard drive
- 17" Micron 17FGx, .26dp (15.8" display)
- Microsoft Office Pro 95 & Bookshelf® 95 CDs

$2,699 Bus. lease $92/mo.

Millennia™ Pro2 360 Plus

- **Dual Intel 180MHz Pentium Pro processors**
- 256KB internal cache, flash BIOS
- PCI 32-bit Ultra SCSI Fast-20 controller
- 12X SCSI CD-ROM drive, 3.5" floppy drive
- 16-bit stereo sound & speakers
- **PCI 64-bit 3D video, MPEG, 4MB EDO RAM**
- *Tool-free* minitower or desktop
- Microsoft Mouse, 104-key keyboard
- Microsoft Windows NT® Workstation 4.0 CD
- Microsoft Office Pro 95 & Bookshelf 95 CDs
- 5-year/3-year Micron Power warranty

- **32MB EDO RAM**
- 2GB Ultra SCSI hard drive
- 15" Micron 15FGx, .28dp (13.7" display)

$3,6 Bus. leas

- **64MB EDO RAM**
- 4GB Ultra SCSI hard drive
- 17" Micron 17FGx, .26dp (15.8" display)

$4,5 Bus. leas

- **128MB EDO RAM**
- 9GB Fast SCSI-2 hard drive
- 21" Micron 21FGx, .26dp (20.0" display)

$6,7 Bus. leas

PORTABLE SOLUTIONS

Millennia TransPort™

- Mobile Intel Pentium® processor
- Intel 430MX PCI chipset
- 256KB L2 pipeline burst cache
- 8X modular CD-ROM drive
- PCI graphics accelerator, 1MB EDO RAM
- Pick-a-Point™ dual pointing devices integrate both pointing stick and touchpad
- Removable EIDE hard drive
- 3.5" modular floppy drive
- Intelligent modular lithium-ion battery
- 16-bit stereo sound
- Built-in stereo speakers and microphone
- 2 Type II or one Type III PCMCIA slots
- S-video and NTSC-video outputs
- Headphone, microphone and line-in jacks
- 2 infrared ports, one front, one back
- Parallel, serial, VGA and 2 PS/2® ports
- Dimensions: 11.7" x 9.4" x 2.0", weight: 6.9 lbs.†
- Nylon carrying case
- Microsoft® Windows® 95 and MS® Plus! CDs
- Microsoft Office Pro 95 and Bookshelf® 95 CDs
- Kensington™ security lock ready††
- 5-year/3-year Micron Power℠ warranty

† 6.9 lbs. includes 3.5" floppy and one battery.
†† Lock secures both Millennia TransPort and MicronDoc

- 133MHz mobile Intel Pentium processor
- 32MB EDO RAM (48MB max.)
- 12.1" active matrix color display, 800x600
- 1.3GB removable hard drive

$4,099 Bus. lease $139/mo.

- 133MHz mobile Intel Pentium processor
- 32MB EDO RAM (48MB max.)
- 12.1" active matrix color display, 800x600
- 2.1GB removable hard drive
- Motorola® Montana 33.6 fax/modem
- 2nd lithium-ion battery

$4,599 Bus. lease $156/mo.

OPTIONS

- With 16MB DIMM module upgrade .....add $349
- With 33.6 fax/modem .....add $259
- With 2nd lithium-ion battery .....add $199
- With primary 2.1GB hard drive upgrade .....add $100
- With MicronDock™ multimedia port replicator .....add $299
- With MicronExec™ desktop package .....add $799
- With car adaptor .....add $89

• 900 E. Karcher Road, Nampa, ID 83687
• Mon-Fri 6am-10pm Sat 7am-5pm (MT)
• International Sales Hours: Mon-Fri 6am-7pm (MT)
• Phone: 208-893-3434 • Fax: 208-893-3424
• Purchase Order Fax: 208-893-8992
• GSA Contract #GS35F4317D
• Technical Support Available 24 Hours A Day–7 Days A Week
• Technical Support Phone: 888-FIX-MYPC
• Technical Support E-mail: techsupport.mei@micron.com

intel inside PENTIUM® PRO PROCESSOR

intel inside pentium® PROCESSOR

MICRON ELECTRONICS, INC

800-249-1176

http://www.mei.micron.com

International Sales 208-893-8970 | International Fax 208-893-7393 | Tollfree from Canada 800-708-1758 | Tollfree from Puerto Rico 800-708-1756 | Tollfree from Mexico 95-800-708-1755

©1996 Micron Electronics, Inc. All rights reserved. Micron Electronics is not responsible for omissions or errors in typography or photography. All purchases are subject to availability. Prices and specifications may be changed without notice; prices do not include shipping and handling. 30-day money-back policy does not include return freight and original shipping/handling charges, applies only to Micron brand products and begins from date of shipment. All sales are subject to Micron Electronics' current terms and conditions of sale. Lease prices based on 36-month lease. Intel, Intel Inside and Pentium are registered trademarks of the Intel Corporation. Microsoft, Windows, Windows NT and the Windows logo are registered trademarks of Microsoft Corporation. All other service marks, trademarks and registered trademarks are the property of their respective companies. FAM-PCW-9611

Make a Great PC Even Better!

Custom configure your new Micron Electronics system with these popular options.

Multimedia Options

- 16-bit 3D Wavetable stereo sound.. $59*
- 16-bit 3D Wavetable stereo soundcard w/2MB RAM $99*
- Advent® AV270 Powered Partners® stereo speakers $99
- Advent AV370 Powered Partners stereo speakers w/subwoofer $199
- Microsoft® SideWinder™ 3D Pro joystick $59

Storage/Media Options

- Adaptec® 2940U Ultra SCSI Fast-20 controller $100
  (upgrade from system with standard Ultra SCSI Fast-20 controller)
- Plextor™ 12PleX 12X 1.8MB/sec SCSI internal CD-ROM drive $200 **
  (upgrade from systems with standard 12X EIDE CD-ROM drive)
- Iomega® Jaz™ SCSI drive with 1.0GB removable cartridge $399 **
- Iomega Zip™ IDE drive with 100MB removable cartridge $99
- Iomega 6-pak of 100MB Zip cartridges $99
- Iomega Ditto™ 800 (400/800MB) Travan™ tape backup w/tape $149
- Iomega Ditto 3200 (1.6/3.2GB) Travan tape backup w/tape $199
- Sony® 4/8GB SCSI DDS-2 DAT tape backup w/tape $999 **

Communications Options

- 33.6bd V.34 internal data/fax modem $139***
- 28.8bd V.34 internal telephony data/fax modem w/full duplex speakerphone and voice mail $159***†

Networking Options

- 3Com® 3C509 ethernet ISA NIC (BNC, AUI & RJ-45) $99
- 3Com 3C595 Fast EtherLink® PCI 10/100 NIC (RJ-45 only) $159
- SMC® ISA TokenCard network card $199

Quicken® Financial Pak

- Quicken Financial Pak, including: Quicken Deluxe 5.0; Quicken Financial Planner™; Quicken Parents' Guide to Money™; Quicken Family Lawyer™, (includes free TurboTax® offer) $79
  (available only on desktop systems with Windows 95)

HP Printer Options

NEW

- HP DeskJet 680c printer—low-cost color printing for the home, complete with cable $319
- HP DeskJet 870Cxi printer—fast color printing for the office, complete with cable $519
- HP LaserJet 5L-FS printer—affordable B&W printing, complete with cable $499

Options and accessories available with system purchase only.

EdVenture Pak

- EdVenture Pak, including: Sheila Ray, the Brave; Putt-Putt® Saves the Zoo™; Reader Rabbit's Reading Development Library™ 1; Freddi Fish™ and the Case of the Missing Kelp Seeds™; and the Thinkin' Things™ Collection 2 $69
  (available only on desktop systems with Windows® 95)

Display/Video Options

- 17" Hitachi® SuperScan® 1711 (15.9" display) .26dp color monitor $150 ††
- 21" Hitachi SuperScan 2111 (20" display) .26dp color monitor $650 ††
- Number Nine® Imagine™ 128 series II video card w/4MB VRAM. $500 †††
- Number Nine Imagine 128 series I video card w/8MB VRAM $750 †††

Millennia TransPort™ Options

- MicronDock™ multimedia port replicator: ethernet 10BT LAN adapter, SCSI-2 port, S-video and NTSC-video output, built-in stereo speakers, infrared port, headphone, microphone, line-in jacks, parallel, serial, VGA and 2 PS/2® ports $299
- MicronExec™ desktop package: matching black 17" monitor (15.8" display) with matching black mouse, mousepad and keyboard (can be used with or without MicronDock) $799
- Motorola® Montana 36.6 fax/modem supports regular telephone connections, cellular phones and two-way paging devices $259
- 3Com ethernet 10BT PCMCIA $149
- Samsonite® leather bag $99
- 2nd modular Lithium-ion battery $199
- 2nd hard drive (1.3GB) $599
- 2nd hard drive (2.1GB) $699
- 16MB DIMM upgrade $349
- Car adapter $89

Service Options

- Extended 2-year on-site service coverage for desktop systems $99
  (upgrade from optional 1-year on-site service coverage)
- Extended 3-year on-site service coverage for desktop systems $139
  (upgrade from optional 1-year on-site service coverage)
- Complete on-site PC installation (call Micron Electronics for details) $159

Other Options

- APC® Per7T surge suppressor $39
- APC Pro7T surge suppressor $59
- Microsoft Natural Keyboard® $49
  (upgrade from standard keyboard)

* Upgrade from systems with standard 16-bit stereo sound card
** Requires SCSI host adapter
*** V.34 modem includes trial memberships to CompuServe®, Prodigy® and America Online®
† Requires sound card
†† Upgrade from systems with standard Micron 17" 17FGx color monitor
††† Upgrade from systems with standard 64-bit 2MB video card

Circle 160 on reader service card

MICRON™ ELECTRONICS, INC.

800-249-1176

http://www.mei.micron.com

Talk to and see people online.

Capture and distort video images.

Edit home movies on your computer.

Obviously, you've got the Bigpicture.™

Now there's a new way to have fun with your computer. It's called the Bigpicture Video Kit and it's available only from U.S. Robotics.

Seeing Is Believing

The video telephone is no longer a technology of the future. Bigpicture lets you video conference point-to-point or over the Internet,* letting you actually see your friends while you're talking to them. It's all here, right now, in one affordable and easy to use package.

A Whole New Dimension For Your PC

Of course, Bigpicture is more than just a video telephone. It also lets you e-mail video images to your friends and even capture video streams from the Internet. The result is hours of online fun.

Just Add Imagination

Bigpicture comes with special software that lets you capture and distort virtually any video image. You can also plug in your VCR and use it to edit your own home movies.

What's more, you can tailor your Bigpicture experience to meet your exact needs. Get everything in one package with the VideoFun™ Kit, or pick up the 33.6 Video Modem or our new Video Camera separately.

And because Bigpicture is from U.S. Robotics, you'll get the speed, reliability and compatibility you've come to expect from the world's #1 maker of modems.

To learn more, visit www.usr.com or call 1-800 DIAL USR. Once you get the Bigpicture, you'll see what you've been missing.

USRobotics x2 TECHNOLOGY

UPGRADE IN JAN. '97

USRobotics®

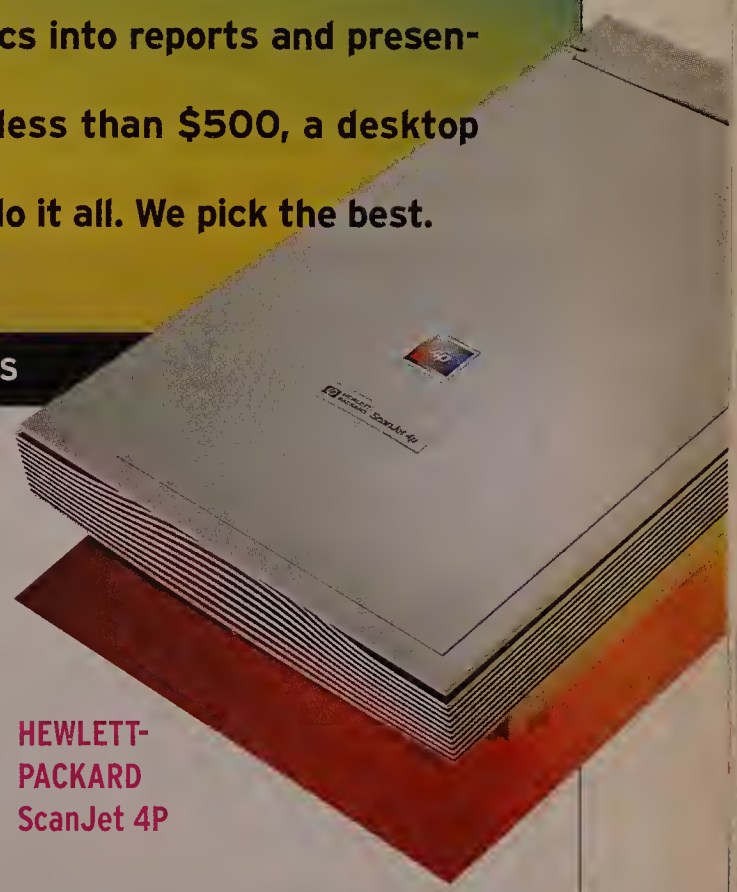
Other end of connection must also be camera-equipped to see called party. Compatible with any standard H.324 video software. U.S. Robotics and the USRobotics logo are registered trademarks, and VideoFun, Bigpicture and the bigpicture logo, x2 and the x2 logo are trademarks of U.S. Robotics. Product specifications subject to change without notice. Contact your U.S. Robotics representative for current product information. ©1996 U.S. Robotics. All rights reserved.

Scanners for the Rest of Us

STORM TECHNOLOGY
EasyPhoto
SmartPage

Need to give Web pages pizzazz and splash graphics into reports and presentations? For less than $500, a desktop scanner can do it all. We pick the best.

BY DEAN ANDREWS



HEWLETT-PACKARD
ScanJet 4P

IT'S EASY TO FORGET that the information on all that paper floating around your desk isn't also inside your PC—that signed contract you need to fax off right now, for example; or the photo that you need to add to tomorrow's sales presentation. Why can't you just stick a document into your PC and scan it?

Someday, most PCs will undoubtedly come with built-in scanners. One or two already do. Hewlett-Packard, for example, has a PC with a scanner for digitizing snapshots. In addition, both Compaq and HP sell keyboards with a built-in scanner. But until scanners are as common as floppy drives, your best bet for turning paper into pixels is to buy an inexpensive color scanner that sits next to your PC. Since last year, prices have dropped to as low as $250. If you can buy a PC, you can probably afford a 300-dot-per-inch color scanner to go with it. ▶

THE BEST BUYS Need good color scans but don't have much free desk space? Consider Storm Technology's lunch box-size EasyPhoto SmartPage (left). For heavier-duty text and graphics jobs, HP's ScanJet 4P (right) delivers the best results.

PHOTOGRAPH: STAN MUSILEK, PRODUCT PHOTOGRAPHS: PIERRE YVES GOAVEC

They are also getting easier to use: The software bundled with newer models is more sophisticated, with features that automatically adjust scan settings, and handy tools for quickly copying documents, annotating and sending faxes, and converting hard copy into something your word processor can understand.

We tested four sheetfed scanners from Logitech, Storm Technology, Umax, and Visioneer, and four flatbed models from Hewlett-Packard, Microtek, Plustek, and Umax. All cost under $500, and all but one, the sheetfed Visioneer PaperPort Vx, scan in color. The good news is that most of these scanners produce perfectly good images for presentations, Web pages, and newsletters. The bad news? Optical character recognition accuracy is still imperfect. Three of the sheetfed scanners and two flatbed models failed our two-column OCR test.

Of the eight devices, the flatbed scanner Best Buy, the HP ScanJet 4P, is tops in both image quality and OCR accuracy. The Storm Technology EasyPhoto SmartPage is our sheetfed scanner Best Buy. Its rugged design and sharp color scans are great for the home office.

Two scanners didn't make the review: Agfa's StudioScan IIsi flatbed arrived with the wrong drivers, and the correct ones came too late; Panasonic's new KS-300 sheetfed unit missed our deadline.

TIP 1

It sounds obvious, but always use the best-quality originals you can. That way, you'll spend much less time repairing an image after you've scanned it.

Choices: Flatbed Versus Sheetfed

WHEN YOU'RE THINKING about getting a scanner, the most difficult choice probably isn't whether to buy, but which type to buy. Compared to flatbeds, sheetfed units are cheaper, take up less desk space, and are easier to install. Except for the Logitech PageScan, the big drawback with most sheetfed scanners is that they scan only loose pages.

Sheetfed models take up far less space. The Visioneer PaperPort Vx, for example, is 12 inches wide and only 2.5 inches deep—compact enough to put behind your keyboard. They get that small by turning the scanner design inside out: Instead of the scan head moving over the paper, tiny rubber wheels pull the paper over the scan head. You simply slip a page into a slot, and it gets sucked through. However, the wheels don't always track perfectly, so pages may get skewed, creating a crooked scan. Sheetfed units focus more on managing paper flow than on getting an optimal scan. For example, to use your printer as a copier, simply feed a page into a sheetfed scanner, push a button, and pull the copy out of the printer.

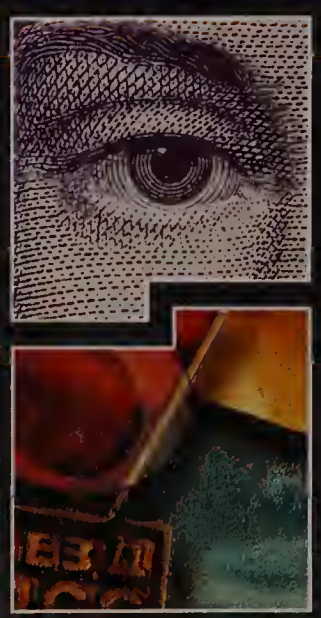
If you do a lot of graphics or OCR

Best Buys

WE HAD A difficult time deciding which scanners deserved Best Buys. Among flatbed models, the Hewlett-Packard ScanJet 4P won out despite a tricky setup. The 4P did the best job of delivering consistently high-quality scans and accurate OCR.

It was an equally tough choice for a sheetfed scanner. But in the end, usable color scans, a durable multipage feeder, novice-friendly software, and a rugged design earned the Storm Technology EasyPhoto SmartPage a Best Buy.

Scanning Samples



Our original photos stressed line detail and light colors (top) and rich colors, highlights, and shadows (bottom). Each scanner mistook our turquoise for blue.

Hewlett-Packard's ScanJet 4P consistently reproduced photos and line art most accurately. Aside from a faint greenish tint, all scans were sharp and bright.

Microtek's ScanMaker E3 scanned the top photo as well as the HP did, but in line-art mode the scan turned nearly black. The bottom scan is very good, but colors are too dense.

The Storm Technology EasyPhoto SmartPage scanned our samples too dark, but an image editor can fix this. Of all the sheetfed units, its scans were the brightest.

Umax's PageOffice Color scans were poor. The upper image is streaked with chunky pixels across the nose and cheek, and the dark scan below was beyond image editing help.

work, a flatbed is a better bet. With flatbed scanners, the original page stays put, so pictures scan more sharply than on sheetfed units. The larger scanning surface of a flatbed is also ideal for odd-size images. And most flatbeds offer optional document feeders that can automatically scan a sizable stack of paperwork.

By No Means Perfect

AFTER WEEKS OF TESTING, it became clear that no scanner is perfect. For example, only three of the eight models could pass our two-column newspaper clipping OCR test: Visioneer's PaperPort Vx, the only sheetfed device to do so; HP's ScanJet 4P; and the Umax Vista-S6E. The other devices made so many errors, we stopped counting. The lite OCR software that comes with these devices is not as accurate as full versions sold separately. Fortunately, if most of your paperwork has just one column, any of these scanners can read it.

At default settings, none of these devices scanned perfectly. Scans were darker than our originals, and colors weren't accurate. Overall, the flatbed models scanned better than the sheetfed units. The HP ScanJet 4P consistently gave us some of the better scans in all of our tests, despite a faint greenish tint. Of the sheetfed scanners, the Visioneer PaperPort Vx was tops at OCR, but it scanned photos only in gray scale. For color sheetfed scanning, opt for Storm Technology's EasyPhoto SmartPage.

Overall, flatbed scanners still scan color graphics about twice as fast as the sheetfed units—about 40 seconds versus about 60 to 90 seconds for sheetfed scanners. Scan resolution and color have the greatest effects on scan speed: You get much faster scans if you scan at lower resolutions using gray scale rather than color. More RAM doesn't help much; 16MB is plenty. In most cases, 32MB upped speeds by only 2 percent.

Storage should be a greater concern: You'll need as much disk space as you can afford. A 300-dpi 5-by-7-inch color photo averages 8.5MB, so even a 1GB hard drive can fill up fast. If you plan to scan a lot of images, invest in a removable storage device such as an Iomega Zip drive.

TIP 2

Try inserting a piece of black paper behind thin newspaper clippings. This helps minimize ghost characters from the other side of the paper.

Generally, flatbed scanners were harder to install than the sheetfed models, because most make you open up your PC and insert a SCSI card. We often ran into IRQ conflicts between the SCSI board and other installed hardware.

Warranties? Just one year for all the units reviewed here. Considering how much these scanners are targeted at the home office, it's surprising that only two vendors—HP and Logitech—offer technical support on the weekends.

For a full description of our scanner tests, visit PC World Online at http://www.pcworld.com/scanner.

SHEETFED SCANNERS

LOGITECH PAGESCAN COLOR

PRO: Scans bound pages, 400-dpi scans in gray scale, quick setup

CON: Color scans are only 200 dpi, dark scan results, no-frills image editor, expensive

LOGITECH'S $399 PageScan Color is the only sheetfed unit that can scan from books. Simply detach the newspaper-size scanner from its base and place it on an open page. Rollers move the scan head briskly across the page and stop when they sense the edge of the book.

We installed the PageScan in 6 minutes—it plugs into your parallel port. The adapter is as small as a deck of cards, and on the back is a pass-through plug for your printer. However, it won't let your printer tell your PC about a paper problem unless you first adjust a few CMOS settings.

Color scans are limited to 200 dpi. That's fine for Web pages, on-screen presentations, and informal printouts. Unfortunately, every scan we got was a tad dark. We tried brightening scans beforehand using the TWAIN drivers, but without success.

The PageScan OCR module read our simple test page easily, but it couldn't decipher our two-column news clipping. The software interface kicks on when a page is fed into the scanner. You can organize scans into "drawers" and ▶

PHOTOGRAPHS: PIERRE YVES GOAVEC

SHEETFED SCANNERS The smallest of the bunch is Visioneer's PaperPort Vx. It's terrific at OCR; too bad it doesn't scan in color. Umax's PageOffice Color is the size of a shoe box, and like the Logitech PageScan Color, is good only for simple OCR tasks. The Logitech's detachable scan head is cool for scanning bound pages.

The NEC PowerMate Series, saves $3,600 over 3 years.

Where is it written that cutting costs has to be a cruel, ruthless act?

Take the new NEC PowerMate® Series, for instance. To most people, it's a sophisticated workhorse that enables them to be more productive. To you, however, it's an effective way to lower costs by reducing system downtime and increasing end-user efficiency.

The fact is, each PowerMate system can save up to 15% of the total cost of desktop ownership, thanks to advanced features that provide efficient network management.*

intel inside pentium® PROCESSOR

THE NEC POWERMATE SERIES. QUITE POSSIBLY THE ONLY COST-SAVING MEASURE THAT WON'T UPSET YOUR EMPLOYEES.

15-watt bulb,
saves $25.75 over
3 years.

Artificial ficus,
saves $142.68 over
3 years.

Generic brand
coffee,
saves $4.50 over
3 years.

Exclusive MagicEye™ technology continually monitors the system's health, including hard drive activity, temperature and voltage. And, if a problem is detected, IS managers can remotely access the system via Intel's LANDesk® Client Manager 3.0. What's more, CyberMedia's FirstAid 95 Deluxe automatically fixes configuration errors and, along with McAfee's anti-virus software, protects valuable data.

What does it all add up to? Quite simply, fewer problems and more productivity. Now isn't that a cost-saving measure everyone can live with?

For more information, call 1-800-NEC-INFO, or visit us on the web at http://www.nec.com.

SEE, HEAR AND FEEL THE DIFFERENCE.™

NEC

©1996 Packard Bell NEC, Inc. NEC and PowerMate are registered trademarks of NEC Corporation used under license by Packard Bell NEC, Inc. See, Hear and Feel the Difference is a trademark of NEC Technologies, Inc. MagicEye is a trademark of Packard Bell NEC, Inc. The Intel Inside Logo, LANDesk and Pentium are registered trademarks and the Pentium Processor Logo is a trademark of Intel Corporation. Product specifications listed are not necessarily reflective of all PowerMate models available. *Savings based on Gartner Group Strategic Analysis Report, "Total Cost of Ownership: The Impact of System Management Tools," September 17, 1996 Key # 19635

Circle 180 on reader service card

DESKTOP SCANNERS — STANDARD FEATURES

SHEETFED SCANNERS	Street price (9/1/96)	Optical resolution (horizontal x vertical dpi)	Maximum paper length (inches)	Scanner width x depth x height (inches)	Connectivity
Logitech PageScan Color	$399	400 x 400 [1]	30	12 x 3 x 4.25	parallel port
Storm Technology EasyPhoto SmartPage*	$299	300 x 300	14	11.3 x 4.3 x 5	SCSI adapter
Umax PageOffice Color	$249	300 x 600	14	11.3 x 4.3 x 5	parallel port
Visioneer PaperPort Vx [2]	$299	400 x 200	30	12 x 2.5 x 3.8	serial port [3]
FLATBED SCANNERS					
Hewlett-Packard ScanJet 4P*	$499	300 x 600	14	15 x 23 x 5	SCSI adapter
Microtek ScanMaker E3	$349	300 x 600	13.5	14 x 19.1 x 4.7	SCSI adapter
Plustek OpticPro 4800P	$369	600 x 300	11	11.7 x 16.7 x 3	parallel port
Umax Vista-S6E	$399	300 x 600	11.7	13.4 x 21 x 5.8	SCSI adapter

*Best Buy ● Yes ○ No [1] 200 x 200 dpi in color. [2] Gray scale only. [3] Optional parallel port adapter costs $8. No support for bidirectional printing.

stack them together. For example, to copy several pages, simply drag a page stack onto the copier icon, and then pull the sheets from your printer. For simple OCR and scanning books, this is a handy tool. But for $100 less, the Best Buy Storm Technology EasyPhoto SmartPage delivers better color scans. *Logitech, 800/231-7717, http://www.logitech.com*

READER SERVICE NO. 715

STORM TECHNOLOGY EASYPHOTO SMARTPAGE

PRO: Intuitive interface, sharp color scans, fast, built-in page holder, draws power right from PC

CON: Must install adapter card in PC, large footprint for a sheetfed scanner

FOR QUICK COLOR scanning, this unit delivered the best scans of any sheetfed device reviewed here. Graphics are sharp and colors are close to the original. Its high-quality scans and intuitive software interface earn this 300-dpi scanner a Best Buy. Literally the size of a bread box, the $299 EasyPhoto SmartPage is designed to sit on a side table, not behind your keyboard like the Logitech or Visioneer. The built-in paper guide on top holds ten sheets, but we stuffed in four more pages without a snag.

Setup was easy, even though this is the only sheetfed model here that makes you install a card. During setup, an AVI video clip walks you through the process. We removed the PC cover, popped in the card, put the case back on, and installed the software, all within 12 minutes. And unlike other scanners, this one draws power directly from your PC's power supply through the card—no need to plug an AC adapter into your power strip. Prior to each scan, the TWAIN software shows a preview, but you have to reinsert the photo in the top of the scanner to make the final scan. Not too elegant.

Each scan appears as a thumbnail inside EasyPhoto's filmstrip interface. For example, to remove scratches or red eye, simply drag a scan from the filmstrip into the EasyPhoto image editor and have at it. By default, images are saved as JPEG files, but you can also save them in BMP format.

The scanner comes with Xerox TextBridge OCR Lite. Our simple press release resulted in only four word errors, but the two-column OCR test page proved too difficult. Despite that, the EasyPhoto SmartPage was the only sheetfed unit to deliver sharp, usable color scans. *Storm Technology, Inc., 888/438-3279, http://www.easyphoto.com*

READER SERVICE NO. 716

UMAX PAGEOFFICE COLOR

PRO: Low price for color scanning, feeder holds 15 pages, comprehensive scanner controls

CON: Scans too dark, small paper guides, paper ejects onto desktop, large footprint

THE OLD UMAX PageOffice sheetfed scanner scanned only in gray scale, and you had to wedge a SCSI card into your PC. This new $249 version—the PageOffice Color—hooks up to your parallel port and has a plug on the back for your printer. Setup took 20 minutes. We had to adjust the CMOS setting so our printer and PC could communicate.

TIP 3

For a professional look on all your correspondence, scan your logo into your PC so you can use it whenever you want in letters or other business documents.

Unfortunately, dark scans were a persistent problem. The PageOffice did okay on simple OCR tests, but it spit out gibberish with our two-column newspaper clipping.

The scanner's design is a mixed bag. The PageOffice's paper feeder holds 15 pages—more than any other sheetfed scanner here. The paper guides adjust to almost any page size, but these are small tabs that can easily get lost. We also didn't like how paper is dumped back onto your desk, bumping into coffee cups and other work debris.

Umax bundles decent software with its scanner. Adobe PhotoDeluxe 1.0 makes fixing images fun, while Presto PageManager integrates daily tasks such as e-mail, faxing, and editing. All in all, the PageOffice Color is tempting, but color scan quality just isn't up to snuff. *Umax Technologies, Inc., 800/562-0311, http://www.umax.com*

READER SERVICE NO. 717

PHOTOGRAPHY: PIERRE YVES GOAVEC

SOFTWARE			SERVICE AND SUPPORT			
Image editor	Optical character recognition	Other	Warranty (years)	30-day money-back guarantee	Toll-free technical support	Weekday/weekend support (hours)
PageScan Image Editor	Xerox TextBridge OCR Lite	copier utility	1	○	●	24/24
EasyPhoto 2.2	Xerox TextBridge OCR Lite	○	1	●	●	10/0
Adobe PhotoDeluxe 1.0	Presto PageManager	form editing	1	○	●	10.5/0
○[4]	Caere OmniPage LE 4.0	copier utility, form editing, business card reader	1	●	○	11/0
Corel PhotoPaint 5 Select	Caere OmniPage LE 4.0	copier utility	1	○	○	18/7
Ulead PhotoImpact SE 3.0	Caere OmniPage LE 4.0	copier utility	1	●	○	10/0
CPI Image-In	Recognita OCR	copier utility	1	●	●	8.5/0
Adobe PhotoDeluxe 1.0	Presto PageManager	form editing	1	○	●	10.5/0

[4] Links to popular graphics programs.

VISIONEER PAPERPORT VX

PRO: Small size, intuitive interface, sharp gray scale and line art, accurate OCR with multi-column documents

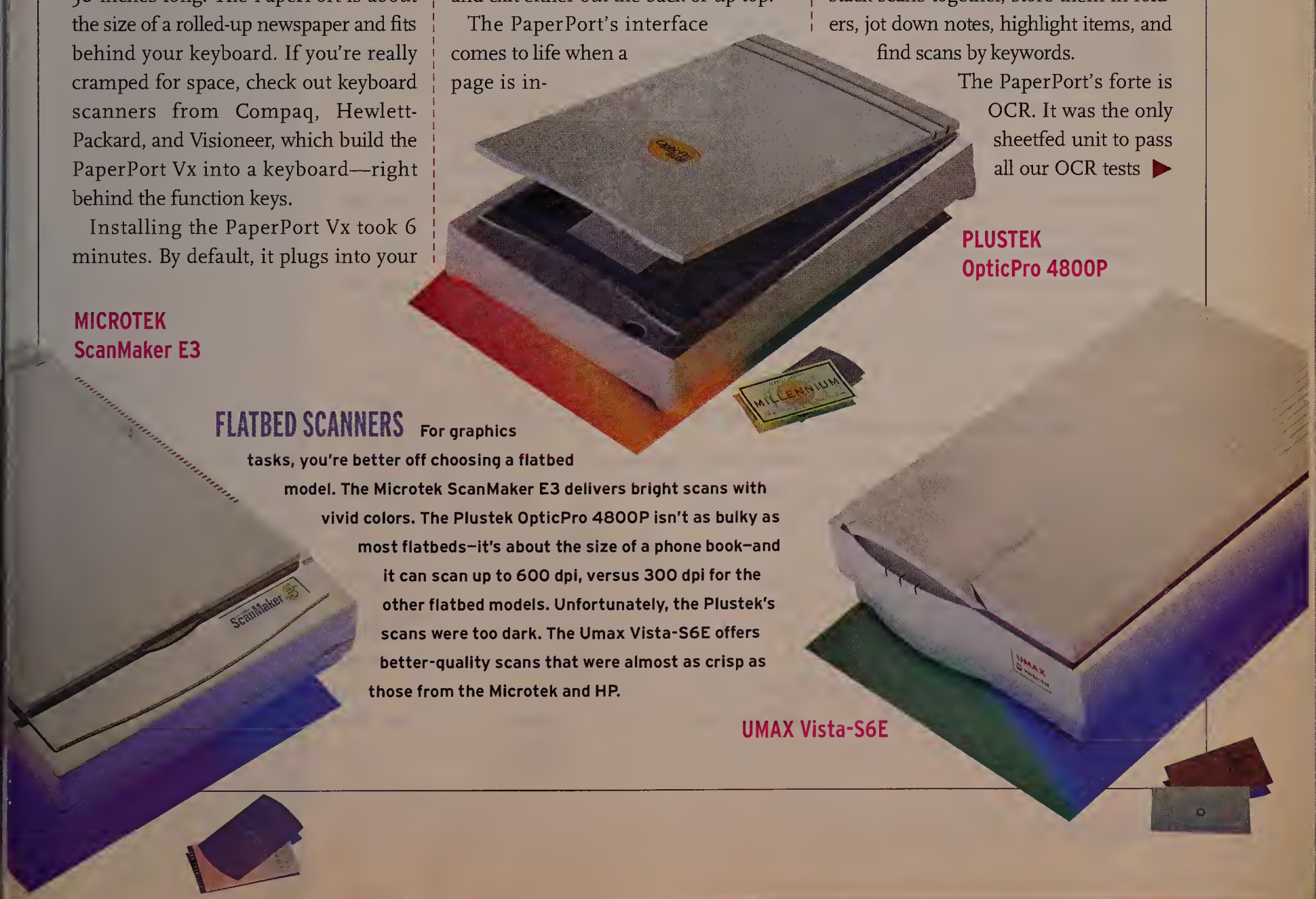
CON: Does not scan in color, flimsy paper path flap, massive AC adapter

FOR FREQUENT OCR chores, the $299 Visioneer PaperPort Vx is tops. Place a page in the lip of this scanner and it gobbles it up. You can scan paperwork up to 30 inches long. The PaperPort is about the size of a rolled-up newspaper and fits behind your keyboard. If you're really cramped for space, check out keyboard scanners from Compaq, Hewlett-Packard, and Visioneer, which build the PaperPort Vx into a keyboard—right behind the function keys.

Installing the PaperPort Vx took 6 minutes. By default, it plugs into your computer's serial port. If all your ports are filled, Visioneer will send you a parallel port adapter for $8. One consideration is that the AC adapter hogs two sockets. If you're short on power strip space, that's a problem. To streamline paper flow, you can redirect the paper path by moving a somewhat flimsy plastic flap on the top of the scanner. You can make the paper feed in front and exit either out the back or up top.

The PaperPort's interface comes to life when a page is inserted into the scanner—HP bundles this Visioneer interface with its ScanJet scanner. A row of icons at the bottom of the screen connects the scanner to your modem, printer, word processor, spreadsheet, or up to 130 popular programs including Excel, cc:Mail, and Photoshop. To edit a scanned article, for instance, simply drag the file onto the Word icon, and go for it. You can also stack scans together, store them in folders, jot down notes, highlight items, and find scans by keywords.

The PaperPort's forte is OCR. It was the only sheetfed unit to pass all our OCR tests ▶



PLUSTEK OpticPro 4800P

MICROTEK ScanMaker E3

UMAX Vista-S6E

FLATBED SCANNERS For graphics tasks, you're better off choosing a flatbed model. The Microtek ScanMaker E3 delivers bright scans with vivid colors. The Plustek OpticPro 4800P isn't as bulky as most flatbeds—it's about the size of a phone book—and it can scan up to 600 dpi, versus 300 dpi for the other flatbed models. Unfortunately, the Plustek's scans were too dark. The Umax Vista-S6E offers better-quality scans that were almost as crisp as those from the Microtek and HP.

Speed Reading From HP, Umax, and Visioneer

SHEETFED SCANNERS	ONE-COLUMN			TWO-COLUMN		
	Speed (seconds)	Average word errors	Accuracy	Speed (seconds)	Average word errors	Accuracy
Logitech PageScan Color	24	4	98.7%	78	unacceptable	–
Storm Technology EasyPhoto SmartPage*	25	4	98.7%	62	unacceptable	–
Umax PageOffice Color	24	7	97.8%	87	unacceptable	–
Visioneer PaperPort Vx	18	4	98.7%	34	31	94.6%
FLATBED SCANNERS						
HP ScanJet 4P (with 4C drivers)*	30	5	98.3%	34	20	96.4%
Microtek ScanMaker E3	24	7	97.7%	36	unacceptable	–
Plustek OpticPro 4800P	20	6	98.1%	82	unacceptable	–
Umax Vista-S6E	21	5	98.4%	39	45	92.1%

* Best Buy

HOW WE TEST We tested each scanner on a pair of Hewlett-Packard Pentium-133 PCs. Test results for 16MB system are shown here; test results for 32MB system are within 2% of 16MB results. We cleared the hard drive on our test PCs each time we installed a scanner. We fed each scanner two test pages: a simple, 286-word single-column press release without graphics, and a complex, 566-word two-column newspaper clipping. We measured the time it took the OCR software to recognize the document after scanning. We scanned each document three times on each test PC, then averaged the word errors to get final results. Over 50 word errors was judged unacceptable.

without lots of errors. If OCR is your top priority, this gray-scale scanner is a smart choice. *Visioneer Inc., 800/782-7007, http://www.visioneer.com*

READER SERVICE NO. 718

FLATBED SCANNERS

HEWLETT-PACKARD SCANJET 4P

PRO: Best OCR, great for scanning photographs, good software bundle, technical support available Saturdays

CON: Faint green tint on scans, must download 4C drivers to perform 300-dpi scans, expensive

THE $499 HEWLETT-PACKARD ScanJet 4P is your best bet for any OCR or imaging task. Scan quality is superb, aside from an ever-so-faint green tint that took just seconds to remove. It was also the most accurate scanner in this review for OCR. HP borrows Visioneer's software interface so you can link your business applications, create copies with your printer, and enhance images using the bundled Corel PhotoPaint 5 Select.

This scanner isn't perfect. Installing the 300-dpi flatbed was easy, but we discovered that the 4P's software drivers limit all but line-art scans to 200 dpi. To scan in color or gray scale at 300 dpi, HP says you must first download drivers for the ScanJet 4C for free from HP's Web site.

Equipped with the 4C drivers, the HP 4P's scans were so sharp that we could see tiny rivets on a billboard in our Times Square test photo. And for really heavy OCR workloads, HP has a document feeder for a hefty $559—more than the cost of the scanner itself. We were able to put 50 pages into the feeder, go around the corner and grab a coffee, and return half an hour later to a pile of scanned paperwork.

All told, although this flatbed scanner is expensive, and you'll need to download better drivers, it should be your first choice if accurate image quality and OCR are top priorities. HP's ScanJet 4P is the only scanner in this review that can handle any OCR or graphics job you give it. *Hewlett-Packard Co., 800/722-6538, http://www.hp.com*

READER SERVICE NO. 719

MICROTEK SCANMAKER E3

PRO: Accurate color and gray-scale scans, good image editor, lowest-price flatbed model here

CON: Poor OCR and line art, big footprint, tricky SCSI card installation, short adapter cable

FOR COLOR AND GRAY-SCALE scanning, the $349 Microtek ScanMaker E3 is a real bargain. This color scanner produced imagery that came close to the quality of the original. By comparison, the Best Buy HP ScanJet 4P was a close second to Microtek in areas of color accuracy and contrast and brightness.

Unfortunately, business users hoping to digitize important paperwork using OCR will be disappointed. For multicolumn projects, you're better off typing in the text yourself. Also, the ScanMaker E3's scan surface is only 13.5 inches long, so it clipped half an inch off our long newspaper column. Not good.

Installation wasn't a piece of cake either. The video inside the box makes setup look easy, but after 45 minutes we gave up and called Microtek's tech support line. The technician asked a few questions, had us flip three switches on the SCSI card, and we were in business.

Microtek's TWAIN drivers prescan each image so you can make adjustments before scanning. If the picture isn't perfect, never fear: The ScanMaker E3 comes with a good image editor, Ulead PhotoImpact SE. All in all, the ScanMaker E3 is a great flatbed scanner for graphics, but poor OCR accuracy and cumbersome installation were setbacks. *Microtek Lab, Inc., 800/654-4160, http://www.microtekusa.com*

READER SERVICE NO. 720

PLUSTEK OPTICPRO 4800P

PRO: Small footprint for a flatbed, 6-minute setup, up to 600-dpi optical resolution

CON: Scans dark, poor OCR, short scan surface

THE $369 OPTICPRO 4800P is a ▶

VISIO

Graphics technology

that will help you work smarter.

Look who's using it.

Try it.

See what it can do for you.

It's a simple change

it only affects how you

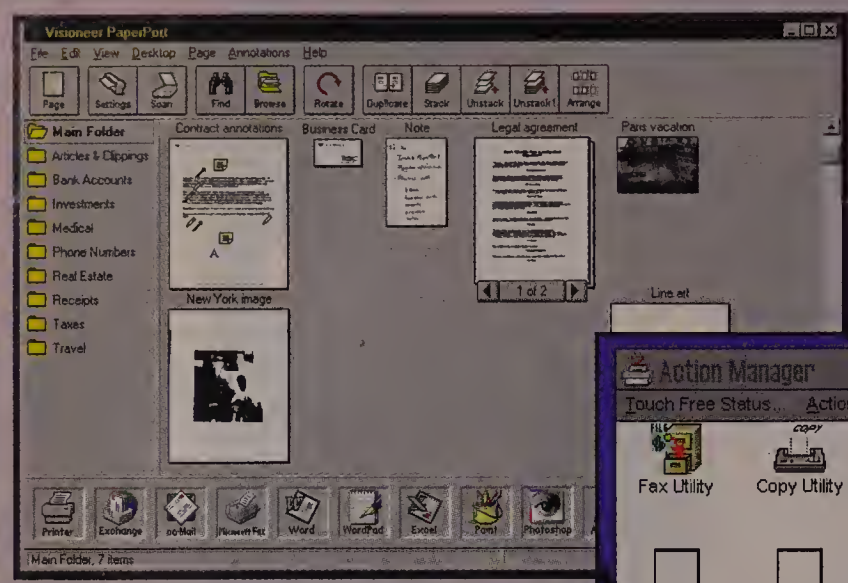
think, plan and work

Change is inevitable. But embrace it and your whole company can be more efficient, rise to new levels. Visio® allows you to make such a change. By using SmartShapes® technology you can create business diagrams that are both intuitive and intelligent. You'll be able to see information more clearly, think about it differently and understand it more completely. Try Visio and see for yourself. Call 800-24-VISIO, ext. F31 or visit the Visio Solutions Library™ at www.visio.com. For a corporate evaluation kit, call 800-VISIO-07.

Chrysler Corporation is saving time by using Visio to track parts throughout the US, Europe, Mexico and Singapore. Other companies use it to save money or increase productivity. Companies such as Amoco, Hewlett-Packard and National Semiconductor.

Visualize your business™

© 1996 Visio Corporation. Visio and SmartShapes are registered trademarks of Visio Corporation. All other trademarks are held by their respective companies. Permission to feature Eagle Talon TSi granted by Chrysler Corporation.



A good scanner software interface makes it easy to keep tabs on scans and link the device to programs you use often. For example, the Visioneer and HP (left) use a desktop metaphor where you can organize documents into folders, attach notes, or drag scan thumbnails onto any program icon you've linked to perform a specific task. A less fancy scanner interface, such as Plustek's (right), manages program links—called Actions—not the scans you've made.

cross between a sheetfed and a flatbed scanner It's the size of a phone book, and hooks up to your parallel port like a sheetfed unit. Best of all, it can scan at up to 600 dpi. That optical resolution gives you the best close-up detail of any scanner here.

What's the catch? Plustek's scanner gave us the darkest images of all the flatbed models we tested. Its Recognita OCR software botched our tests, and the short 11-inch scan surface cut the bottom off our long newspaper article.

It's easy to link software you already use with the scanner interface. Each link is called an Action. To send a fax, make a copy, or zip off an e-mail message, place the page on the scanning surface, and click an Action icon to perform the task. All told, the high resolution and small footprint of the Plustek OpticPro 4800P are pluses, but the consistently dark scans and poor OCR deflated the high hopes we had for this pint-size flatbed scanner. *Plustek, Inc., 800/685-8088, http://www.plustek .com*

READER SERVICE NO. 721

TIP 4

Want to tilt a picture for a Web page or print layout? Instead of doing it with software, scan the picture at an angle. The results will look crisper and cleaner.

UMAX VISTA-S6E

PRO: Speedy scans, good OCR on complex documents, good software bundle

CON: Scans a tad dark, small scanning surface for a bulky flatbed

THE $399 UMAX Vista-S6E took only 12 minutes to install, and it performs quickly. In its haste, though, the Umax unfortunately gave us scanned images that were a tad too dark and not quite as sharp as scans produced by the Microtek or HP scanners. We could easily salvage images using the bundled Adobe PhotoDeluxe 1.0 image editor, but scan quality was still third-rate for a flatbed.

We had to tweak TWAIN scanner settings for half an hour before we could get a decent image that could be used for on-screen projects such as a Web page or presentation. One thing we did like about both of the Umax scanners was the software bundle—particularly Adobe's PhotoDeluxe, which walks you through everything from scanning in images to touching up photos and adding effects. For business chores, the Presto PageManager suite let us drag and drop stacks of scans into any application that we linked to the scanner. The interface is easy to use: For example, to fax a page, just drop a file on the fax machine icon. Type the number, and the fax is sent through your modem. Presto's OCR module also recognized our difficult two-column newspaper clipping. It took less than 3 minutes to correct the typos.

Setup is simple, performance is fast, OCR accuracy is good, and the software bundle is excellent, but in the end we expected better picture quality from this flatbed scanner. *Umax Technologies, Inc., 800/562-0311, http://www.umax.com*

READER SERVICE NO. 722

Dean Andrews is a freelance writer based in San Francisco.

For more information about all products in this article, circle reader service no. 909. ■

Introducing the 56K download
over analog phone lines.

Introducing the next generation
of Internet access.

Introducing the new standard
for online speed.

Introducing x2™ Technology from

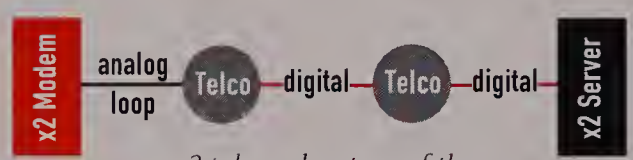
U.S.Robotics®

56K. It's not just a new kind of modem. It's a new

The Biggest Breakthrough In Online Communications

For years, 33.6K was thought to be the practical transmission speed limit over analog phone lines. Not any more. New x2™ technology from U.S. Robotics shatters this barrier. Now you can get up to 56K of actual transmission speed when you download.

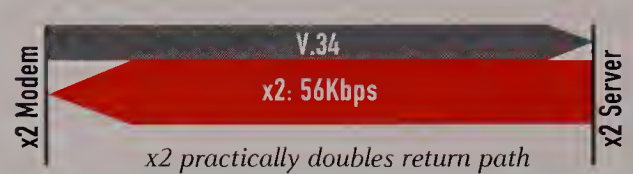
This revolutionary breakthrough is brought to you by the advanced team of engineers at U.S. Robotics. Their knowledge of the increasingly digital telephone system makes x2 possible. x2 takes advantage of the typical network configuration found when an analog subscriber connects to a digitally connected server. Because it bypasses the analog-to-digital conversion in the downstream path, x2 can use nearly all of the available 64K network bandwidth.



x2 takes advantage of the highly digital phone network.

(Upstream data, typically less speed sensitive, travels at the standard V.34 rate.)

The result is a completely new kind of transmission technique. Based on "encoding" rather than "modulation," it can give you download speeds that you never thought possible. What's more, with standard V.42 *bis* compression, x2 can download at speeds up to a blistering 230.4K.



x2 practically doubles return path

Whether you're surfing the net, telecommuting from home, or accessing information from a mobile location, x2 can help you get what you want, when you want it.

Only U.S. Robotics Can Bring You x2 Technology

U.S. Robotics is uniquely positioned to bring you this breakthrough. We are the #1 provider of information access solutions in the world today. That's because our communications products are favored on both the server and end-user sides. This is important, since a communication technology must be in place on both ends of the connection to work properly for you.

Connecting More People Than Anyone Else In The World

U.S. Robotics Total Control™ Enterprise Network Hubs are widely used by Internet service providers, corporate sites, and online services. Our Megahertz® brand is the leading choice for mobile users. And more people choose Sportster® modems than any other desktop brand. All told, no company puts more communication power into the hands of more people throughout the world than U.S. Robotics.

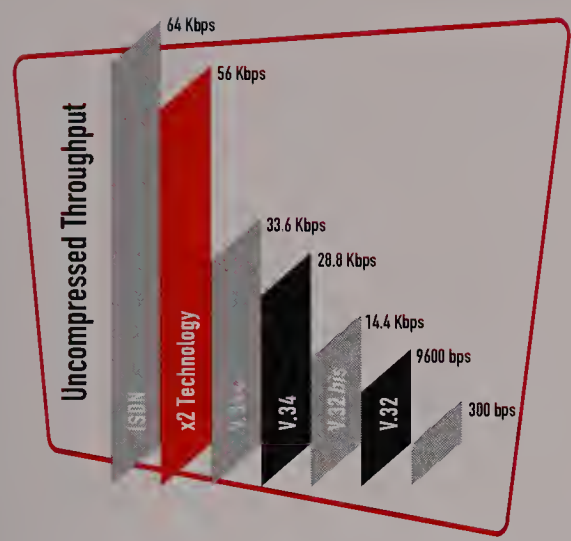
x2 technology is being supported by over 30 industry leaders worldwide. These include:

AMERICA Online

CompuServe

IBM

MCI



Comparison of actual line throughput speeds.

Creating The Next Worldwide Standard

As the first company to bring you 14.4K, 28.8K/V.34, and 33.6K technology, U.S. Robotics is the leader in blazing the trail toward faster standards. In fact, we've already submitted x2 to the ITU-T board, and expect it to become the standard of the future.

But greater speed is in demand right now. And, because x2 was designed to work with existing V.34 standards, we're able to bring it to you.

Offering x2-Capable Products To Meet Every Need

Sportster, the world's #1 selling modem, is now shipping in an easily upgradable version, and has been since August 1996.

Our Total Control™ NETServer, MP, and Courier™ products are flash ROM upgradable, with no extra equipment to buy.

And our Megahertz© PC Cards will be x2-capable beginning in early 1997.

Whatever your needs, you know they'll be met at incredible speed–and a reasonable price–whenever you see the x2 logo.

kind of technology.

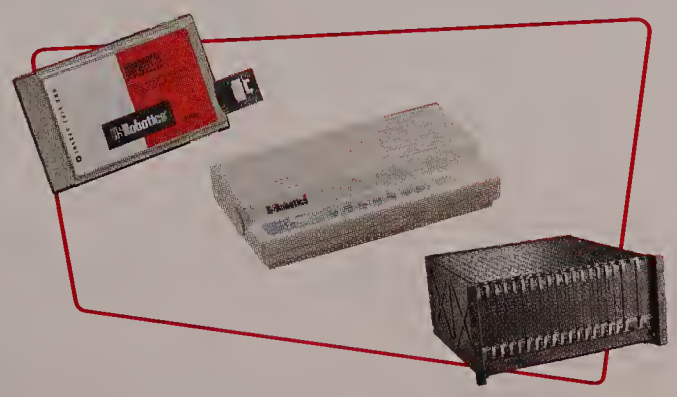
Supported By Major Internet Service Providers

America Online, CompuServe, and MCI are just some of the more than 30 ISPs worldwide that are implementing x2™ in their access servers. With such overwhelming support, x2 will become the technology of choice for anyone who wants the very fastest in online connections.

Simply check our website to find out if your ISP supports x2 technology, or contact them directly.

Adopted By Industry Leaders

x2 has been embraced by every sector of the communications industry, including major retailers, chipset makers, and original equipment manufacturers. This widespread acceptance ensures that x2 will be available to you on a variety of platforms, both now and in the future.



U.S. Robotics features a complete line of x2-capable products.

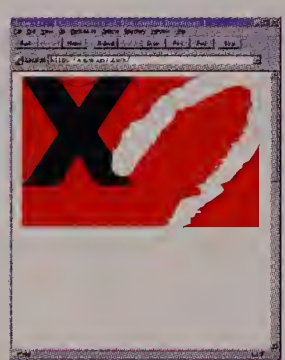
NETCOM™

prodigy internet™

TEXAS INSTRUMENTS

The breakthrough you don't have to wait for.

A graphic download at 14.4K speed.



In the same amount of time, a 28.8K modem downloads this much.

While x2 Technology's 56K speed gives you the whole picture.

USRobotics®
x2 56Kbps modem
TECHNOLOGY

Faster Downloads From The Internet

While x2™ is ideal for any online application, you'll really notice the increased speed when accessing graphics-heavy web pages or high bandwidth audio and video files.

x2 can cut the time you spend waiting for downloads nearly in half. You'll spend more time surfing, and less time waiting.

Helping Critical Business Data Flow Faster

Now, busy work-at-home professionals can replicate Notes™ files, download spreadsheets, and access their corporate intranets faster than ever. With x2 on both ends of the communication chain, you'll see a remarkable savings in time. And in today's business world, time is money.

The Reasonably Priced Alternative To ISDN

Until now, 64K ISDN (*Integrated Services Digital Network*) lines were the only way to get downloads this fast. But ISDN lines are expensive to install and maintain.

With x2 you can get comparable speeds over the same telephone lines you're using now. In fact, the vast majority of today's North American phone lines can support x2 connections.

Available Now At Major Retailers

You can find x2-capable modems from U.S. Robotics on the shelf today wherever you buy computer products. Just look for the x2 technology logo. It's your guarantee that you'll be able to upgrade quickly and easily to the fastest connection speeds available over regular phone lines today.

Bringing Online Communications To The Next Generation

As the new standard for online speed, x2 technology gives you the access solution that's right for today's needs, and ready for tomorrow's innovations. To learn more about how x2 can save you time, call us toll free at 1-800-525-USR1 or visit us at www.usr.com/x2.

x2 technology. It's the future of online communication, and it's available today, only from U.S. Robotics.

Call us toll free: Desktop users dial 1-800 DIAL USR. Corporate customers dial 1-800 USR CORP. Mobile users dial 1-800 LAPTOPS. U.S. Robotics 7770 Frontage Road Skokie, Illinois 60077, www.usr.com/x2.

©1996 U.S. Robotics. All rights reserved. U.S. Robotics, the USRobotics logo, Sportster and Megahertz are registered trademarks and Courier, x2, the x2 Technology logo and Total Control are trademarks of U.S. Robotics. All other product names are used for identification purposes only, and may be trademarks and/or registered trndemarks of their respective companies. Product and prognm specifications subject to change without notice. Contact your U.S. Robotics representative for current product information. R11.96

PC WORLD

TOP 100

192 Power Desktops

204 Budget Desktops

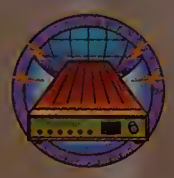
212 Notebooks

221 Printers

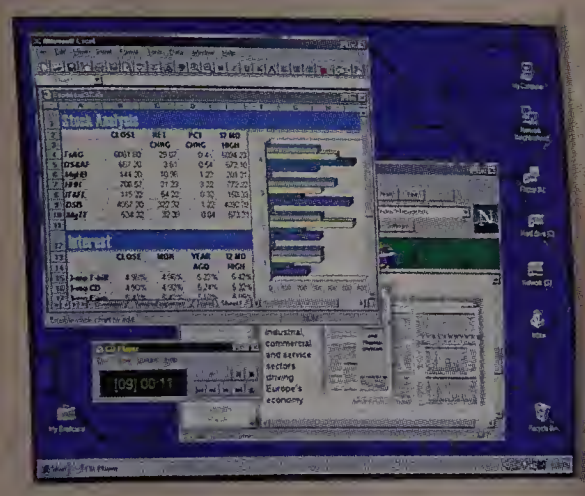
225 Monitors

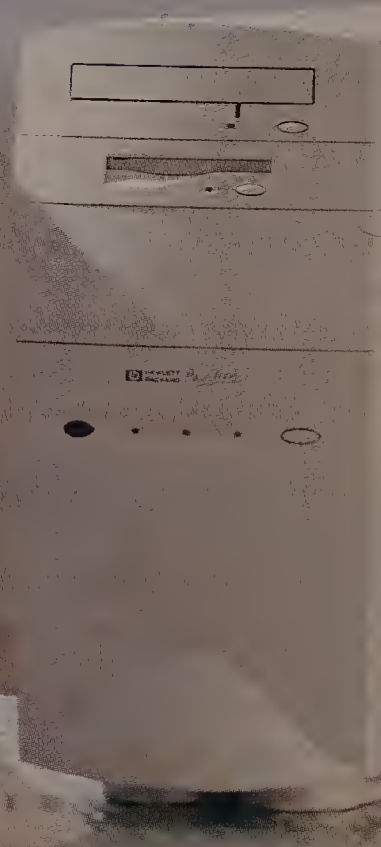
227 Graphics Boards

229 Modems



Home PCs mean Business





HP'S PAVILION 7285: A home PC you wouldn't mind taking to the office.

PCs ARE GETTING BETTER at playing both the home appliance and the office tool. Several companies are making PCs more attractive with designer colors and more comely shapes, offering better multimedia monitors, and even integrating classic domestic devices such as the radio and the TV.

At the same time, we're finding these home PCs to be as powerful as most of the traditional office PCs we've tested. The biggest

BY BRYAN HASTINGS

PHOTOGRAPHS MICHAL VENERA

difference is that you may have to pay up to a $500 premium for them.

This month we looked at four of the latest PCs designed to appeal especially to home users: Hewlett-Packard's Pavilion 7285, Packard-Bell's Platinum 65, Sony's PCV-90, and Toshiba's Infinia 7200. All are Pentium-200 systems, and all performed near or on par with a typical office PC of the same CPU.

Including a TV on a PC can be helpful for catching the news or other late-breaking information while you're working. But there are trade offs to the PC/TV arrangement. On the Toshiba Infinia, you take a noticeable performance hit to watch TV; informal tests showed that this Pentium-200 acted more like a P-75 when large spreadsheets were opened while the small (8-inch) TV screen was active. Also, the $3548 Infinia is expensive for a P-200; you can save several hundred dollars by buying a more price-competitive P-200 and a separate TV set. All that said, the Infinia is the best multifunction PC we've seen so far. In addition to TV, it has AM/FM radio, a CD player, and a telephone answering machine, all controlled from a front-panel command center and a remote unit. Packard-Bell's Platinum also came with a TV tuner. All these home computers came with 28.8- or 33.6-kilobits-per-second modems.

HOME RUN? Sony's PCV-90 has good looks and a multimedia monitor.

A multimedia monitor can be a real plus for the home or a private office, considering the growing use of video and audio on the Internet. The PCV-90 and Infinia multimedia monitors are some of the best we've encountered. With a pair of tweeters and midrange speakers mounted on the sides and subwoofers embedded into their bases, these monitors provide surprisingly full-bodied sound. They still remind us more of boom boxes than Bang and Olufson speakers, but the quality is a long way from the muffled squawk long associated with PCs.

HP's $3560 Pavilion 7285, number nine on our Power Desktops chart, was the only home PC of the four to make the Top 20 chart. Its home-oriented features include a voice modem so you can set up the PC to take phone messages, and an alternate desktop interface called "Personal Page" that lets you separate the pro-

YOUR GUIDE TO THE TOP 100

QUESTIONS ABOUT OUR CHARTS? The following section should answer most of them. If not, ask us; see page 12 for contact information.

How do the charts work? The Top 20 and Top 10 charts are evolving lists of the best PCs, monitors, modems, printers, and graphics boards we've tested. Every month we test the latest products in each category and compare them to the pool of items we've already reviewed. As new products earn places on the charts, those at the bottom drop off. Price cuts also cause chart changes.

Where do you get your prices? We estimate street prices based on vendor information and our own research, including surveys of retail outlets. We recheck all prices every month.

What does the overall rating mean? It's the sum of all our tests—both hands-on evaluations and automated speed tests. The scale is 1 to 100, so a product that scores in the 90s is generally considered exceptional, one in the 80s is among the best, one in the 70s is above average, and one that scores lower usually doesn't place.

What does the PC WorldBench score mean? It's a measure of how fast a PC is in relation to our baseline machine, a Dell P75t configured with 8MB of RAM, a 540MB hard drive, and no secondary cache. A PC that scores 200, for instance, is twice as fast as the baseline unit.

Where do the reliability and service and support scores for PCs come from? The reliability score and the "service" portion of the service and support score come from readers who respond to the Reliability and Service fax-back survey in each issue of *PC World*. The "support" portion of the service and support score is based on the vendor's support policies (such as length of warranty and support hours).

What do all those word scores mean? Word scores for performance and price are based on a product's rating in relation to other products in its category. For example, a budget PC that is rated "expensive" is high-priced only in relation to other budget PCs. Likewise, a power notebook rated "good" for performance is good only in relation to other power notebooks. Word scores for other categories, such as features, are relative to all desktops or all notebooks.

Where can I find the online version of the Top 100? Go to PC World Online (http://www.pcworld.com). There you'll find not only the current issue of *PC World* and reviews for the last 18 months, but some extra features you'll want to check out. For one thing, PC World Online includes reviews you won't find in print. If a product misses a chart and we don't cover it here, you can go directly to an online review by using the URL provided in each Top 100 section.

Have you ever wished you could build your own chart based on your buying criteria? Now you can, with Personal Shopper at our Web site. Personal Shopper combines your criteria with *PC World*'s current data and test results to generate customized Top 20s and Top 10s. For instance, if you want your chart to rank notebooks that have 120-MHz processors and 28.8-kbps modems, Personal Shopper will find and rank all the machines that fit your specifications.

grams that you and your kids use, and to restrict access to your programs. Yet the Pavilion fits the corporate bill with a generous feature set, including an extra-large 3.2GB hard disk and round-the-clock tech support hours, and its PC WorldBench score of 207 puts it ahead of most P-200 desktops for home or office. The Pavilion is pricey, but according to our survey, HP systems are rock-solid reliable.

You can read about the Infinia, Platinum, and PCV-90 on PC World Online (http://www.pcworld.com/t20snaps).

WHAT'S NEW ON THE CHARTS

TWO NEW DELL AND MICRON systems jockeyed for the top Power Desktops spot, with Micron's Millennia P166 edging out the Dimension XPS Pro200n. The Micron P166 system is the Dell Pro-200n's equal in all but performance, where it trails Dell's machine by over 20 PC WorldBench points. But the P166 is also more than $1000 cheaper than the Pro200n. Quantex's new QP5/200 M-4 Pentium Pro-200 minitower (number 11 on the Power Desktops chart) is faster than any PC we've tested except the Pentium Pro-200 PCs from Gateway 2000 and Sys Technology.

On the Budget Desktops chart, Micron hit the top Best Buy spot with a new Millennia P133. We reviewed this model last March, but Micron has upgraded the BIOS since then, so we retested the latest unit. This is an $1899 PC that performs like a P-166 and has a terrific graphics subsystem. Another P-133 unit that made our Best Buy ranks is Compaq's Presario 4402. It has no free bays and only two free expansion slots, and Compaq charges for tech support after a year, but if you can live with this, you might want to consider this highly reliable, reasonably priced system.

The only new Top 20 notebook this month is Gateway 2000's Solo 2100 P-133, hitting third on the Power chart. The $4599 price is a bit steep, but it's the fastest notebook we've tested. This Solo's PC WorldBench score of 186 puts it in the league of Pentium-133 desktops. That, plus a great feature set, puts the Solo on the chart, even with reader qualms about service and support. Meanwhile, WinBook just discontinued its XP5 line of notebooks, causing a Power and a Budget contender to drop from the charts.

WHAT'S HAPPENING WITH PERIPHERALS

WE REVISIT 17-INCH monitors for the first time since September; the Iiyama Vision Master Pro 17 is our top choice. It offers the best graphics images we've seen yet, and it does a great job on text, too. Check out our Top 10 Monitors chart.

High-end graphics cards are getting more affordable. The 3D Xpression+ PC2TV, ATI's revamp of one of its most popular cards, hits the number one Top 10 Graphics Boards slot this month, and it's the first 4MB-equipped unit we've seen for under $200. This amount of RAM also offers "true-color" (16.8 million colors) images at 1024 by 768 resolution. You get images with a richness of detail and hue that will take your breath away.

From the looks of the Top 10 Modems chart, 33.6 kbps is fast becoming the norm. ISDN it ain't, but when it comes to Web browsing, you should take every kilobit per second you can get. If you're shopping for a workgroup printer, check out the latest lineup in the Top 10 Printers roundup. Tektronix's new $3495 Phaser 350 bridges the price-quality-speed chasm between ink jets and lasers with a unit that uses solid ink technology. It's a bit lame when it comes to text—small-point text is fuzzy—but it produces gorgeous images comparable to many color lasers, and it can crank them out faster than nearly all the color printers we've tested.

Bryan Hastings is a senior associate editor for PC World. *Assistant Editor Allyson Bates, Staff Editors John Goddard and Eric Hellweg, Senior Associate Editors Brad Grimes and Harry McCracken, Associate Editor Melissa Riofrio, and freelance writers Jon Jacobi and Jim Martin contributed to the Top 100. Testing for the Top 100 by Dave Casini, Ulrike Diehlmann, Jeffrey Kuta, Kevin Mitchell, Susan Silvius, and Mike Salayko. See page 12 for contact information.* ▶

NEW YEAR'S RESOLUTIONS

THERE'S NO REST for the weary PC shopper. You've just gotten used to Windows 95 and sorted out the many flavors of Pentium chips. Now Microsoft and Intel want to make this the year of the Pentium Pro PC and possibly even Windows NT. Meanwhile, the Internet is reaching out and touching everybody, and demanding more bandwidth while it's at it.

So plan for the future, or at least for this year. Keep your chin up, and make these three resolutions:

1 Buy more memory now. If you don't already have at least 16MB of RAM, hie thee to the nearest memory store—prices are going up. Windows 3.*x* ran pretty well with 8MB of RAM, but using a Windows 95 PC with less than 16MB can be like trying to spur along an old nag. And if you're even thinking of moving to Windows NT 4.0, make that 32MB.

2 Get the largest hard disk you can afford. Industry pundits have a rule of thumb: You need twice the hard disk space you needed last year. This year we see every indication that hard drives 2GB or larger will be the minimum. The Internet is rife with disk-ravenous multimedia content that needs huge amounts of space, and software developers continue their never-ending quest to add more features. With space costing around 12 cents per megabyte and dropping, getting the largest hard disk you can is worthwhile.

3 Upgrade your modem to 28.8 or 33.6 kilobits per second. It's no longer a question whether you should get on the Internet, but when. Do yourself a favor and get the fastest modem available—even these can cost under $100. Even at 28.8 or 33.6 , the Net can be sluggish, but at anything less, you're playing with your sanity.

ILLUSTRATION: JOHN BLECK

PC WORLD

TOP 20 POWER DESKTOPS

	SYSTEMS	Last month	Month tested	Street price (10/15/96)	CPU	Comments
1	Micron Millennia P166 800/223-6571 www.micron.com	–	NEW	$2708	Pentium-166	Revamp is very fast for a P-166; excellent graphics; as reliable as they come.
2	Dell Dimension XPS Pro200n 800/388-8542 www.dell.com	–	NEW	$3738	Pentium Pro-200	Updated unit has great speed, easy-open case, clean design, top reliability.
3	Dell OptiPlex GXpro 200 800/388-8542 www.dell.com	2	Aug 96	$3702	Pentium Pro-200	Fast corporate PC, modular design, built-in networking.
4	Micron Millennia Pro200 Plus 800/223-6571 www.micron.com	7	Dec 96	$3708	Pentium Pro-200	$999 price cut on PC with Iomega Jaz drive; P-166 version also good.
5	Dell Dimension XPS P200s 800/388-8542 www.dell.com	3	Sept 96	$2999	Pentium-200	Hot graphics card is a plus; fast PC, but not faster than EDO DRAM systems.
6	Dell OptiPlex GXMT 5200 800/388-8542 www.dell.com	5	Sept 96	$3771	Pentium-200	Fast; uncommonly good deal on a network-ready PC.
7	Gateway 2000 G6-200 800/846-2000 www.gw2K.com	8	Dec 96	$2879	Pentium Pro-200	Very fast; SCSI storage; ample expandability; good as a workgroup server.
8	Compaq Deskpro 2000 Model 5200/1080 800/345-1518 www.compaq.com	6	Nov 96	$3218	Pentium-200	No sound, but great performance, high reliability rating, and clean design.
9	HP Pavilion 7285 800/752-0900 www.hp.com	–	NEW	$3560	Pentium-200	Fast; large hard disk; voice modem; warranty is for only one year.
10	Cyrix 6x86 P200 800/340-7501 www.cyrix.com	9	Nov 96	$3839	Cx6x86-P200+	Competes well with mostly slower P-200s; biggest hard drive on chart.
11	Quantex QP5/200 M-4 800/896-4898 www.quantex.com	–	NEW	$2569	Pentium Pro-200	Great speed; needs better reliability.
12	HP Vectra 500 Model 515MCx 5/166 800/752-0900 www.hp.com	12	July 96	$2754	Pentium-166	Small-business PC with voice mail; its reliability is hard to beat.
13	HP Vectra VL4 5/200MT 800/752-0900 www.hp.com	11	Sept 96	$3183	Pentium-200	Well-built PC; P-166 version is also good.
14	Sys Technology Performance Pro 200 800/613-9963 www.systechnology.com	17	Dec 96	$2949	Pentium Pro-200	Fastest PC to date; good graphics card, but otherwise generic components.
15	Netis N6200PCI 800/577-7526 www.netistech.com	18	Dec 96	$3028	Pentium Pro-200	Enormous tower PC can take two CPUs; it's fast and cheap for a PPro-200.
16	IBM PC 350 P200 800/426-2968 www.pc.ibm.com	15	Sept 96	$3903	Pentium-200	Great network PC includes Universal Serial Bus ports; a bit expensive.
17	ZDS Z-Station GT 500 800/582-0524 www.zds.com	16	Sept 96	$3570	Pentium-200	Fast and well put together, except for the add-in cards—they're upside down.
18	Tangent TC6200 800/800-5550 www.tangent.com	19	Dec 96	$2795	Pentium Pro-200	Fast; inexpensive for a PPro-200; can be set up as minitower or desktop PC.
19	Acma zPower Pro 200 800/786-6888 www.acma.com	–	NEW	$3395	Pentium Pro-200	Speedy and has great graphics and multimedia.
20	DTK Quin-55M/P200 800/289-2385 www.dtk.com	–	Dec 96	$2550	Pentium-200	Great system held back by low reliability rating.

Best Buy See features chart, page 194; performance chart, page 196. Recommended as home system

[1] To order fax copies of system reviews, call 800/434-4495 from a touch-tone phone and use your credit card. You can order next month's reviews in advance: Power Desktops, Budget Desktops, or Notebook PCs Top 20 charts and capsule reviews ($9.95, available December 23).

THESE DAYS, Pentium-200 PCs and their Pentium Pro counterparts rule the power desktop roost. Nearly all the power systems we tested this month are Pentium-200 or Pentium Pro-200 units. Newcomer CLR has a powerful minitower that didn't miss our chart by much—though our having to leave messages for tech support in the middle of the day helped keep it off the chart. The NEC PowerMate P2200, which also fell just shy of the chart, shows what interesting and useful improvements NEC is making to documentation. For more details on the systems that didn't make the Power Desktops chart, visit PC World Online (http://www.pcworld.com/t20pcsnaps).

SCORECARD

★ Overall rating	PC WorldBench score/performance	Vendor's system reliability	Features and design	Price	Vendor's service and support	Fax reprint number [1]	Reader service number
91	208/very good	best	outstanding	inexpensive	best	3473	645
91	230/very good	best	outstanding	average	best	3474	646
91	232/outstanding	best	outstanding	average	best	3401	647
90	230/very good	best	outstanding	average	best	3457	648
90	208/very good	best	outstanding	average	best	3415	649
89	216/very good	best	outstanding	average	best	3417	650
87	234/outstanding	fair	outstanding	average	good	3458	651
87	218/very good	best	very good	average	good	3442	652
86	207/good	best	outstanding	average	fair [2]	3475	653
86	223/very good	[3]	outstanding	expensive	[3]	3444	654
86	233/outstanding	poor	outstanding	inexpensive	fair	3476	655
85	192/good	best	outstanding	inexpensive	fair [2]	3383	656
84	201/good	best	very good	average	fair [2]	3421	657
83	236/outstanding	[3]	outstanding	average	[3]	3459	658
83	230/very good	[3]	outstanding	average	[3]	3460	659
82	215/very good	fair	outstanding	expensive	fair	3419	–
82	215/very good	good [2]	outstanding	average	[3]	3420	660
81	230/very good	[3]	outstanding	average	[3]	3461	661
80	231/outstanding	[3]	outstanding	average	[3]	3477	662
79	208/very good	poor [2]	outstanding	inexpensive	[3]	3478	663
Scorecard weightings	Performance 25 percent	Reliability 25 percent	Features 20 percent	Price 15 percent	Support 15 percent	All products:	905

[2] Limited data; score is based on responses for this company and average of all companies.
[3] Insufficient data.

This Month's Best Buys

1 MICRON MILLENNIA P166

PRO: Very fast, cleanly laid out, readers give the company high service and reliability ratings

CON: None significant

Whenever we have a system that consistently places high on the charts, we completely rereview it several times during the course of its life. The latest Millennia P166 replaces the unit we reviewed last April. This nicely decked-out minitower is now our most highly recommended power desktop.

$2708 is a very reasonable price for a fast, full-featured PC. In fact, many of the more budget-minded shoppers will be able to afford it. This latest Millennia P166 scored well above the typical P-166, matching the performance of some Pentium-200 units. It's cleanly designed, well assembled, and backed by outstanding support. There's remarkably little to find fault with on this system.

People who do a lot of work with high-resolution images will have their needs met here. The Diamond Stealth 3D 2000 video card with a generous 4MB of EDO DRAM delivers true-color images at up to 1024 by 768 resolution, and the 17-inch monitor does a nice job of displaying them. The Millennia's 2.1GB hard disk should satisfy most people's needs for a while. This is a strong multimedia package, and it comes with a modem. However, the only software you get is the operating system.

Micron Millennia P166

When we looked inside the Millennia's minitower case, we found it to be exceptionally cleanly laid out and spacious. Having the sound chip integrated onto the motherboard reduces the clutter by one expansion card. We found the Millennia's documentation to be excellent.

Micron backs its hardware with an excellent support package. A three-year parts warranty, 24-hour toll-free phone support, and a free first year of on-site service are first-rate for consumer PCs. But support is more than just policies: Some companies with 24-hour-a-day, seven-day-a-week service are still impossible to get in touch with. Not so with Micron. Judging by the many faxes we've received from readers in our on-going survey, Micron does a superb job of providing service to its customers. Readers also have registered few complaints about the sturdiness and reliability of its PCs.

2 DELL DIMENSION XPS PRO200N

PRO: Very fast, extremely well appointed, great reliability, excellent support

CON: None significant

No PC is perfect. We have our nit-picks with this minitower. But in the final analysis, the XPS Pro-200n is one of the best power desktops you can buy. This $3738 machine ▶

TOP 20 POWER DESKTOPS — STANDARD FEATURES

	SYSTEMS	CPU	RAM (MB)	Secondary cache (K)	Hard drive (GB)	Graphics adapter	Video RAM (MB/type)	Monitor tube/ viewable diagonal (inches)	Screen pitch (mm)	CD-ROM drive speed
1	Micron Millennia P166*	Pentium-166	32	512	2.1	Diamond Stealth 3D 2000	4/EDO DRAM	17/15.8	.26	8X
2	Dell Dimension XPS Pro200n*	Pentium Pro-200	32	256	3.2	Number Nine Imagine 128 Series 2	4/VRAM	17/15.6	.28	8X
3	Dell OptiPlex GXpro 200*	Pentium Pro-200	32	256	2.1	Number Nine Imagine 128 Series 2	4/VRAM	17/15.6	.28	8X
4	Micron Millennia Pro200 Plus*	Pentium Pro-200	32	256	2.1	Number Nine Imagine 128 Series 2	4/VRAM	17/16	.26	8X
5	Dell Dimension XPS P200s*	Pentium-200	16	512	2.6	Number Nine Imagine 128 Series 2	4/VRAM	17/15.3	.28	8X
6	Dell OptiPlex GXMT 5200	Pentium-200	32	512	2.1	Number Nine Imagine 128 Series 2	4/VRAM	17/15.6	.28	8X
7	Gateway 2000 G6-200	Pentium Pro-200	32	256	2.1	Matrox Millennium	4/WRAM	17/15.9	.25	8X
8	Compaq Deskpro 2000 Model 5200	Pentium-200	32	256	1.1	integrated Cirrus Logic 5436	2/EDO DRAM	15/14	.28	8X
9	HP Pavilion 7285	Pentium-200	32	256	3.2	S3 Virge PCI	2/EDO DRAM	17/15.5	.28	8X
10	Cyrix 6x86 P200	Cx6x86-P200+	32	256	4.1	Matrox Millennium	2/WRAM	15/14	.28	8X
11	Quantex QP5/200 M-4	Pentium Pro-200	32	256	2.6	STB Lightspeed 128	2/MDRAM	17/16.1	.25	8X
12	HP Vectra 500 Model 515MCx 5/166	Pentium-166	16	256	1.6	integrated Trio64	1/DRAM	15/13.7	.28	8X
13	HP Vectra VL4 5/200MT	Pentium-200	16	256	2.5	Matrox Millennium	2/WRAM	15/13.5	.28	8X
14	Sys Performance Pro 200	Pentium Pro-200	32	256	2.5	Matrox Millennium	2/WRAM	17/15	.28	8X
15	Netis N6200PCI	Pentium Pro-200	32	256	2.1	Matrox Millennium	2/WRAM	17/15.1	.28	6X
16	IBM PC 350 P200	Pentium-200	32	512	1.6	integrated Trio64V+	2/EDO DRAM	17/15.5	.28	6X
17	ZDS Z-Station GT 500	Pentium-200	32	256	2.6	integrated ATI-264VT	2/SGRAM	17/15.5	.26	8X
18	Tangent TC6200	Pentium Pro-200	32	256	2.1	ST8 Lightspeed 128	2/MDRAM	17/15.7	.27	8X
19	Acma zPower Pro 200	Pentium Pro-200	32	256	2.1	Matrox Millennium	4/WRAM	17/15.5	.28	8X
20	DTK Quin-55M/P200	Pentium-200	16	512	2.1	ST8 Lightspeed 128	2/MDRAM	17/16	.28	8X

* Best Buy [1] Toll call.

replaced the Dimension unit we reviewed in August of last year, back when Pentium Pro-200 systems first appeared. This Dimension performed in typical Pentium Pro-200 fashion, cleaning the clocks of all the desktops based on other processors. The Pro200n is a top-of-the-line system through and through, from the 17-inch monitor, to multimedia with crisp true-color graphics and snappy wavetable sound, to a hard disk that can probably hold more data than your local library. It also includes a 33.6-kbps modem. If you're going to be venturing out onto the World Wide Web, you will want every bps of speed a modem can muster, and unless you go for ISDN, a 33.6-kbps modem is the fastest you can get. The Dell's $3738 price is pretty much in line for this heavily loaded unit.

Dell Dimension Pro200n

The XPS Pro200n's case is based on the "s" series of Dell Dimensions. The CD-ROM drive is on top, and the power and reset buttons are located in the center of the front panel, well away from the floppy disk eject button, so users won't accidentally turn off the computer while trying to eject a floppy disk. While the engineers were at it, they made the case much easier to open. Give a thumbscrew a few turns, and off comes the side panel to reveal an impeccable interior with plenty of free slots and bays. The motherboard is arranged so that the corner with all the cable connectors sits right below the drive cage, which means you're not faced with the usual LA-freeway maze of ribbon cables crisscrossing everywhere and obstructing the slots. Our only complaint is that the system's interior needs better ventilation; the heat sink in our test machine burned our hand when we touched it, despite inclusion of a big cooling fan. More air could circulate if the hard disk weren't mounted so close to the front grille.

Dell's support policies are among the best, and you can usually get through to technicians without waiting. System reliability ranks among the best, too, according to *PC World* readers. We get dozens of fax-back responses from Dell owners each month, and few of them complain about system problems.

		EXPANDABILITY						CUSTOMER SUPPORT			
Modem speed (kbps)	Sound board	Case style	Max. RAM (MB)	Maximum secondary cache (K)	Open RAM sockets	Open drive bays (ext./int.)	Open slots	Warranty for parts/labor (years)	Weekday toll-free support (hours)	Weekend support	Online support
28.8	integrated Vibra 16S	minitower	128	512	2	3/1	5	3/1	24	Sat., Sun.	CIS, WWW
33.6	Sound Blaster AWE32	minitower	128	512	2	3/1	4	3/1	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW
–	integrated Vibra 16	desktop	512	256	3	1/1	4	3/3	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW
–	Sound Blaster AWE32	minitower	128	256	2	2/1	4	3/1	24	Sat., Sun.	CIS, WWW
28.8	integrated Vibra 16	minitower	64	512	1	3/1	4	3/1	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW
–	integrated Vibra 16	minitower	128	512	2	3/1	5	3/3	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW
–	Sound Blaster 16 PnP	tower	256	256	2	3/6	4	3/3	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW
–	–	compact	128	256	2	2/0	5	3/1	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW
28.8	integrated Yamaha YMF 701	minitower	128	256	2	2/3	6	1/1	24	Sat., Sun.	AOL, BBS, CIS, WWW
–	Sound Blaster AWE32	minitower	256	512	0	1/3	4	3/3	24	Sat., Sun.	BBS, WWW
33.6	Ensoniq Soundscape Vivo	minitower	256	256	2	3/3	4	3/1	15	Sat., Sun.	BBS, Prodigy, WWW
28.8	Sound Blaster 16	minitower	128	256	4	2/1	4	1/1	16	Sat.	AOL, BBS, CIS, WWW
–	Sound Blaster 16	minitower	128	512	4	2/1	4	3/3	11 [1]	–	AOL, BBS, CIS, WWW
28.8	Sound Blaster 32 PnP	minitower	128	512	2	3/1	4	1/1	24	Sat., Sun.	WWW
33.6	Sound Blaster 16 PnP	tower	256	512	6	3/0	5	1/3	10	Sat.	BBS, WWW
–	–	desktop	192	512	4	1/1	5	3/3	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW
–	Creative Labs Vibra 16	minitower	192	512	4	4/1	5	3/3	24	–	BBS, CIS, MSN, WWW
28.8	Sound Blaster 32 PnP	desktop	1024	512	6	2/2	4	3/3	11	Sat.	BBS, WWW
28.8	Sound Blaster 16 PnP	minitower	512	256	2	1/1	4	3/1	9.5	–	BBS, WWW
–	Sound Blaster 16 PnP	minitower	128	512	2	3/3	5	2/2	9	–	WWW

3 DELL OPTIPLEX GXPRO 200

PRO: Very fast, great design, networking

CON: None significant

The $3702 GXpro is a great buy, especially as a network machine. It's a very fast, easily upgradable powerhouse designed to work well in a corporate environment. The PC comes with some multimedia components, including integrated sound and speakers, but don't count on the ultimate multimedia experience. Dell puts most of the muscle behind this Pentium Pro machine into a LAN connection and a terrific interior design that network administrators will love.

With a PC WorldBench score of 232, the OptiPlex GXpro is one of the fastest systems we've tested. The graphics hardware is top-notch—a Number Nine Imagine 128 Series 2 graphics card with 4MB of VRAM, and a bright, crisp 17-inch Dell D1728D monitor. The multimedia setup is pretty much par for the course, with an integrated Vibra 16 sound chip, Altec Lansing ACS 31 speakers, and an 8X CD-ROM drive. The PC comes ready to plug into your network with an integrated 3Com ethernet adapter.

Dell OptiPlex GXpro 200

The OptiPlex GXpro's desktop design is a vast improvement over previous systems. In fact, it's one of the easiest-to-upgrade PCs we've seen. The case is simple to remove, and the internal construction is modular. Cards are housed on a vertical riser plane that slides out at the touch of a lever. Even the power supply swings aside for effortless access to the motherboard and drive bays. An easy-to-upgrade tower version is also available. Like the number five Dimension XPS P200s, the GXpro uses DIMM memory modules rather than SIMMs. People who service computers love these newer modules because they make it easier to add memory without having to remove lower-capacity modules to make room. Unlike other systems with DIMM sockets, the OptiPlex GXpro 200 has four sockets instead of two. This leaves three sockets open, so graphics professionals and other people who need lots of RAM can fill 'er up. ▶

4 MICRON MILLENNIA PRO200 PLUS

PRO: Fast, Iomega Jaz drive, good graphics card, wavetable sound card, good CD-ROM drive

CON: None significant

If you're one of the bean counters scared off by the cost of this unit reviewed for the December issue, come on back. Micron sliced the price of this minitower by a cool grand, bringing it down to a much more palatable $3708. The system comes decked out with the best components Micron offers, making it well suited for the corporate office. If you add a modem to it, it would make a nice home office system as well.

One included feature is an Iomega Jaz, a slick little portable tape backup drive. In view of how huge hard disks have gotten and how important data security is, it's surprising that more computers don't come with some sort of massive data backup system. Too few people bother with floppy jockeying, even if it's their only backup option.

Micron Pro200 Plus

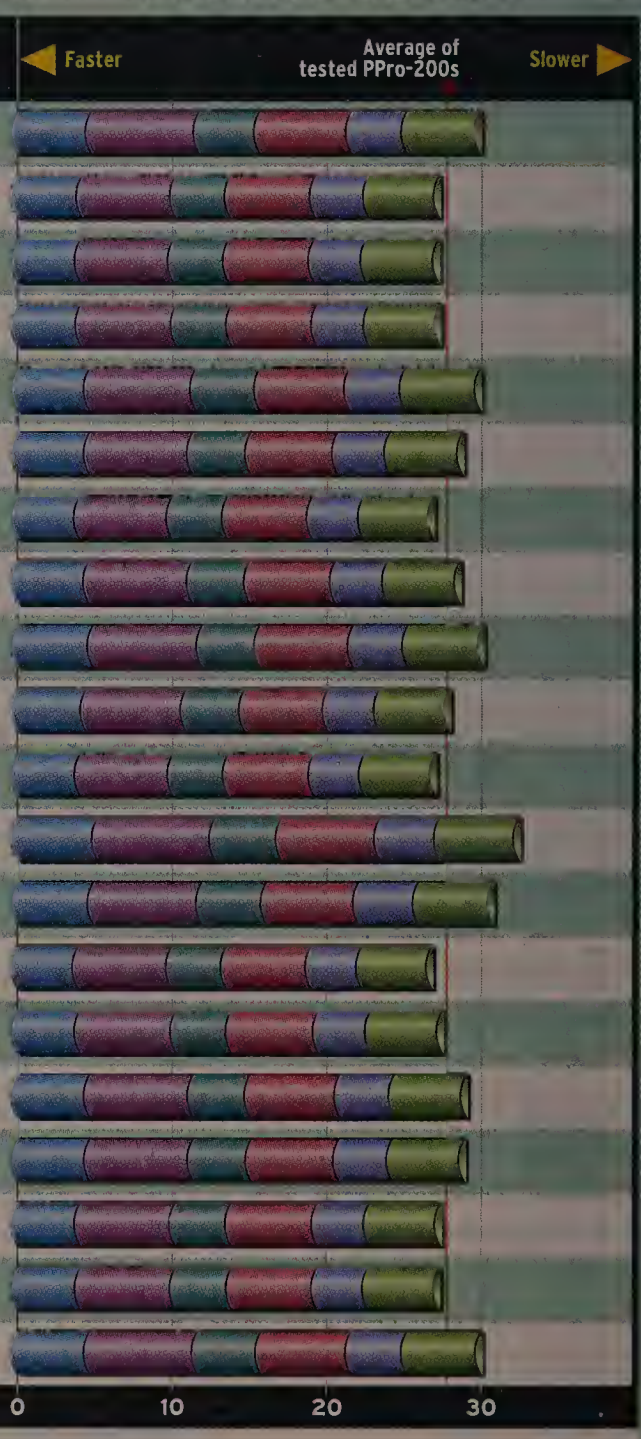
Video is simply great. The Number Nine Imagine 128 Series 2 graphics card with 4MB of VRAM can deliver high-resolution true-color images on the screen, ▶

TOP 20 POWER DESKTOPS

	SYSTEMS	CPU	RAM (MB)	Secondary cache (K)	PC WorldBench score
1	Micron Millennia P166*	Pentium-166	32	512	208
2	Dell Dimension XPS Pro200n*	Pentium Pro-200	32	256	230
3	Dell OptiPlex GXpro 200*	Pentium Pro-200	32	256	232
4	Micron Millennia Pro200 Plus*	Pentium Pro-200	32	256	230
5	Dell Dimension XPS P200s*	Pentium-200	16	512	208
6	Dell OptiPlex GXMT 5200	Pentium-200	32	512	216
7	Gateway 2000 G6-200	Pentium Pro-200	32	256	234
8	Compaq Deskpro 2000 Model 5200/1080	Pentium-200	32	256	218
9	HP Pavilion 7285	Pentium-200	32	256	207
10	Cyrix 6x86 P200	Cx6x86-P200+	32	256	223
11	Quantex QP5/200 M-4	Pentium Pro-200	32	256	233
12	HP Vectra 500 Model 515MCx 5/166	Pentium-166	16	256	192
13	HP Vectra VL4 5/200MT	Pentium-200	16	256	201
14	Sys Technology Performance Pro 200	Pentium Pro-200	32	256	236
15	Netis N6200PCI	Pentium Pro-200	32	256	230
16	IBM PC 350 P200	Pentium-200	32	512	215
17	ZDS Z-Station GT 500	Pentium-200	32	256	215
18	Tangent TC6200	Pentium Pro-200	32	256	230
19	Acma zPower Pro 200	Pentium Pro-200	32	256	231
20	DTK Quin-55M/P200	Pentium-200	16	512	208

*Best Buy

PERFORMANCE



Word 7.0 for Windows 95
Excel 7.0 for Windows 95
Picture Publisher 6.0 for Windows 95
Paradox 5.0 for Windows
WordPerfect 6.1 for Windows
1-2-3 release 5 for Windows

HOW WE TEST All systems are tested with PC WorldBench, PC World's application-based benchmark. A higher PC WorldBench score is better. All PCs have Windows 95, and video resolution is set to 800 by 600 in 256 colors. We run automated scripts on six popular business applications, performing common tasks such as spelling checks, scrolls, saves, sorts, and recalculations. The PC WorldBench score is a sum of the weighted result of each script: Word (25 percent), Excel (20 percent), Picture Publisher (15 percent), Paradox (15 percent), WordPerfect (15 percent), and 1-2-3 (10 percent). For more details on our benchmark and how we run it, see PC World Online (http://www.pcworld.com).

KDS

What are you looking at?℠

KDS Visual Sensations™ are better monitors no matter how you look at them.

Better because of built-in **reliability** based on ISO 9001 certified assembly.

Better because they have all the **advanced** features you want.

Better because they give you an outstanding **value** without compromising quality.

And better because of KARES -- the industry's only lifetime **express** replacement program.

Contact us today for more details.

Because no matter what you're looking at, KDS monitors are preferred by people who use their heads.

Sales: 800.237.9988
Specs-By-Fax: 800.511.2589
http://www.kdsusa.com

KDS ADVANCED REPLACEMENT KARES EXPRESS SERVICE

© 1996 KOREA DATA SYSTEMS LTD All rights reserved Visual Sensations is a trademark of KOREA DATA SYSTEMS CO LTD

Circle 170 on reader service card

which in this case is a bright, crisp 17-inch monitor, the Micron 17FGx. Overall, system performance is very good, verging on outstanding. The Millennia Pro200 Plus pulled down an impressive PC WorldBench score of 230. As far as graphics goes, Micron offers a choice of the Imagine 128 Series 2 board or the Diamond Stealth 3D 2000 board.

The disk and tape drive options on the Millennia Pro200 Plus—the Jaz drive (which uses removable 1GB cartridges), a 2.1GB Seagate hard drive, and a speedy Plextor 8X CD-ROM drive—are all attached to a PCI-based BusLogic SCSI-2 controller. Multimedia is a cut above the norm, with a Sound Blaster wavetable sound card and a pair of Advent AV270 speakers. This is also one of the few systems to come with the fullest version of Microsoft Office available—Office Professional, which includes the Access database program as well as Word, Excel, and the PowerPoint presentation package.

The Pentium Pro-200 chip generates a lot of heat, and Micron wisely placed three fans inside this minitower to keep the components cool. Getting to the motherboard is a snap thanks to the system's easy-open case. You can insert up to four add-in cards (two of them PCI cards) and two externally accessible drives. The two open SIMM sockets are easy to access.

Micron covers the RAM and CPU with a five-year warranty; other parts are covered for three years. Labor is covered for one year. Tech support lines are open around the clock, though lately we've been having limited success getting through in under 45 minutes. Still, most people seem to have little trouble with Micron: The most recent results of our ongoing survey show that the company has earned the highest marks from our readers.

5 DELL DIMENSION XPS P200S

PRO: Big hard drive, 8X CD-ROM drive, fast graphics card, 28.8-kbps fax-modem

CON: A bit slower than we expected, considering use of fast SDRAM; no speakers

The Dimension XPS P200s is the top-end PC in Dell's "s" series, the follow-on to the well-regarded "c" line of Dells that topped our charts for

Dell Dimension P200s

months. The updated Intel chip set in Dell's "s" series supports SDRAM—a type of main memory that's faster than today's popular EDO DRAM. It's difficult to draw hard conclusions, considering the different configurations of the Pentium-200s we've tested, but SDRAM doesn't seem to have done the P200s much good. Its PC WorldBench score of 208 lags behind that of several Pentium-200 desktops that use EDO DRAM. Part of the problem simply may be that Dell hasn't finished fine-tuning the P200s. We'll retest soon to see if speed has improved. In the meantime, the P200s is still among the fastest Dell Dimension systems we've ever tested.

One thing Dell doesn't have to tweak is the graphics card. The Number Nine Imagine 128 Series 2 with 4MB of VRAM that came with our machine adds more than $300 to the system's price, but it can handle all of your graphics chores, including high-end image editing and desktop publishing. The card even has 3-D hardware and support for CAD acceleration. Other peripherals are also the cream of the crop or nearly so: the 8X CD-ROM drive, a 512K pipeline-burst secondary cache, a crisp Dell 17-inch monitor, and a U.S. Robotics 28.8-kbps fax-modem, which rates very highly on our Top 10 Modems chart.

The system's on/off button is circular, slightly recessed, and smack in the middle of the front panel, well away from the floppy eject button. A wide foot at the minitower's base helps prevent tipping. Inside the P200s you'll find several other nice design touches: An extremely quiet fan augments the power supply fan, memory is supplied on high-capacity DIMMs, and a vertically mounted hard drive is placed just behind the internal speaker to save space. Dell bundles the Microsoft Office Professional application suite with this system but doesn't include any speakers to go with the integrated sound chip. Adding a pair of basic speakers costs you another $36.

Printed and on-screen documentation is clear and complete. Dell's system reliability and service are highly rated by our readers, and the three-year parts and one-year labor warranty, year of free on-site service, 30-day money-back guarantee, and around-the-clock tech support hours all are fine offerings.

If you don't want to spend quite as much and don't need Pentium-200 speed, we recommend the $2899 Dimension XPS P166s, which we tested with 16MB of RAM, a 17-inch monitor, and a 28.8-kbps fax-modem. Like the P200s, it's not the fastest in its processor class, but it's still a good performer.

New This Month

The following PCs made our Power Desktops chart for the first time this month. For previously tested PCs on the chart, visit our Web page at http://www.pcworld.com/t20pcs.

9 HP PAVILION 7285

PRO: Big hard disk, voice modem

CON: Only a one-year warranty

Hewlett-Packard's latest is an excellent machine for the home office. The Pavilion 7285 minitower offers a host of nifty features, including telephone answering capabilities and 3-D sound, and it has the quality feel of most HP products. It also performs well, as you might fairly expect of a Pentium-200 system carrying 32MB of EDO RAM. Priced at a reasonable $3560, the package also includes a 17-inch monitor, an 8X CD-ROM drive, wavetable synthesis, Altec Lansing speakers, and loads of software, making this a terrific multimedia system. In short, Hewlett-Packard has covered just about all the bases well with the Pavilion 7285—except support. More on that later.

HP Pavilion 7285

The Pavilion is both handsome and rugged, with some nice proprietary design touches. Most notable is an unusual stacked motherboard design in which a second board that contains just the expansion card connectors lies over the ▶

RATED XXXXXXXXXXXXXXXX

INTRODUCING THE OBSCENELY FAST GOLDSTAR 16X CD-ROM DRIVE

Downloading mountains of data? With a maximum transfer rate of 2.4 Mb/sec and 100 ms access time, nothing gets applications running faster than the GoldStar 16X CD-ROM drive. What's more, the new GoldStar 16X CD-ROM drive is Windows® 95, NT, OS/2® Warp, and Solaris® compatible and comes with a one year limited warranty. Why settle for 12X speed when you can get performance that's off the charts? Get yourself the highly rated GoldStar 16X CD-ROM drive.

GoldStar
LG Electronics

www.lgeus.com

PC WORLD BEST BUY
GCD-R580B
October 1996

All trademarks and/or registered trademarks are property of their respective companies.

Circle 134 on reader service card

motherboard. This separates the connectors from the rest of the motherboard, so there's less chance you'll damage other components when installing and removing adapter cards. There's an unusually high number of free slots (six), helped by the fact that the sound chip is integrated onto the motherboard. On the downside, you have to remove the top board to access the SIMMs and processor easily. The overall design and construction are clean, with cables neatly tucked aside, and little to no flex to the case. The Pavilion's 17-inch monitor is crisp and pleasant to look at, but the 15.5 inches of viewing area is a little under par for the course. It's driven by an S3 Virge PCI adapter with 3-D capabilities and MPEG support. With the 3.2GB hard drive, there's plenty of room even for big multimedia files. The voice modem lets the computer behave as a telephone answering machine.

Hewlett-Packard bundled a lot of software with this machine, including Quicken SE, one of the best programs around for balancing your checkbook and tracking your finances. HP also provides on-screen help and an alternate desktop called Personal Page that sits atop Windows 95. It's simpler and less powerful than Windows 95's main window, but it's prettier, and especially nice if you have kids: You can hide sensitive files and put their favorite programs within easy reach. This Pavilion's documentation is thorough and easy to read. And readers give Hewlett-Packard an excellent rating for the reliability of its desktop computers.

Support is the Pavilion's main drawback. Hewlett-Packard does offer 24-hour tech support, and if your Pavilion flakes out during the first year, service is free on-site. But the package doesn't include coverage of any kind after that. Most of all, Hewlett-Packard needs to shore up the quality of its support on its Pavilion line—readers responding to our ongoing fax-back survey rate it only as fair.

11 QUANTEX QP5/200 M-4

PRO: Smoking performance, great price, feature-rich, good expandability

CON: Poor system reliability rating and only fair service rating

Life is full of if-onlys—those niggling drawbacks that mar an otherwise marvelous thing. For instance, some people would love to cook risotto once a week—if only it didn't require constant stirring for nearly 30 minutes. In a similar vein, we have another if-only to add to the list: We would give this Pentium Pro-200 system from Quantex a glowing review—if only the company's service and reliability were better. It's been improving recently, but it still has far to go.

For an exceedingly reasonable price of $2569, Quantex delivered a Pentium Pro-200 machine that ranked among the best performers in this month's roundup—yet it costs $600 to $700 less than comparable Pentium Pro-200 models. From a price/performance standpoint, this system is difficult to beat.

And it's totally packed. The QP5/200 M-4 comes loaded with enough RAM and hard disk space to handle large multimedia files. It's also got one of the better multimedia setups you'll find on a home system, and the speakers with subwoofer produce rich, full-bodied sound. The monitor is a pleasure to use, with images looking particularly sharp and vivid. Six open drive bays allow you to add more devices, such as a tape backup drive or an extra hard drive. The company offers 15 hours of toll-free technical support each weekday, as well as weekend hours.

Quantex QP5/200 M-4

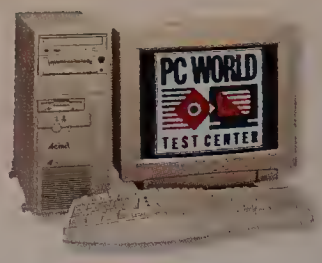
Quantex has got its PC formula down pretty well. Now it needs to get quality and service a little more under control. We've heard a number of complaints about faulty product and poor service. The company says it's working on these areas. We've already seen some improvement in the last few months. Stay tuned.

19 ACMA ZPOWER PRO 200

PRO: Fast, removable and lockable hard drive

CON: Limited drive bay expansion

Aesthetically, Acma's latest is an unimaginative bone-beige minitower. But there are more important things to look for in a computer than a handsome countenance. Sheer speed, for instance: This $3395 Pentium Pro-200 machine earned a PC WorldBench score of 231. It comes well equipped for multimedia and for exploring the riches of the World Wide Web.



Acma zPower Pro 200

The system ships with a 17-inch ADI Microscan monitor; unfortunately, the actual display area, measured diagonally, comes to 15.5 inches—a bit smaller than on other 17-inch monitors.

If you need extra data security or easy portability and upgradability, you'll appreciate the system's removable 2.1GB EIDE hard drive with keys and lock; there's also a useful on-screen glossary of computer terms preinstalled for novices. The system has two free PCI slots, one free 16-bit slot, and one shared slot, which should be enough for most users. The zPower Pro 200 is somewhat tight on drive bay space, however, with only one spot each for a 3.5-inch drive and a 5.25-inch drive. The machine's interior cables are neatly arranged, and the fan purrs quietly. The system casing is sturdy, and the large thumbscrews make it very easy to remove the case at upgrade time.

The Acma is reasonably, though not compellingly, priced. The warranty that comes with this PC—one year for labor, three years for parts—isn't bad. Phone calls are toll-free, but technical support is available only Monday through Friday. ▶

Beyond the Top 20

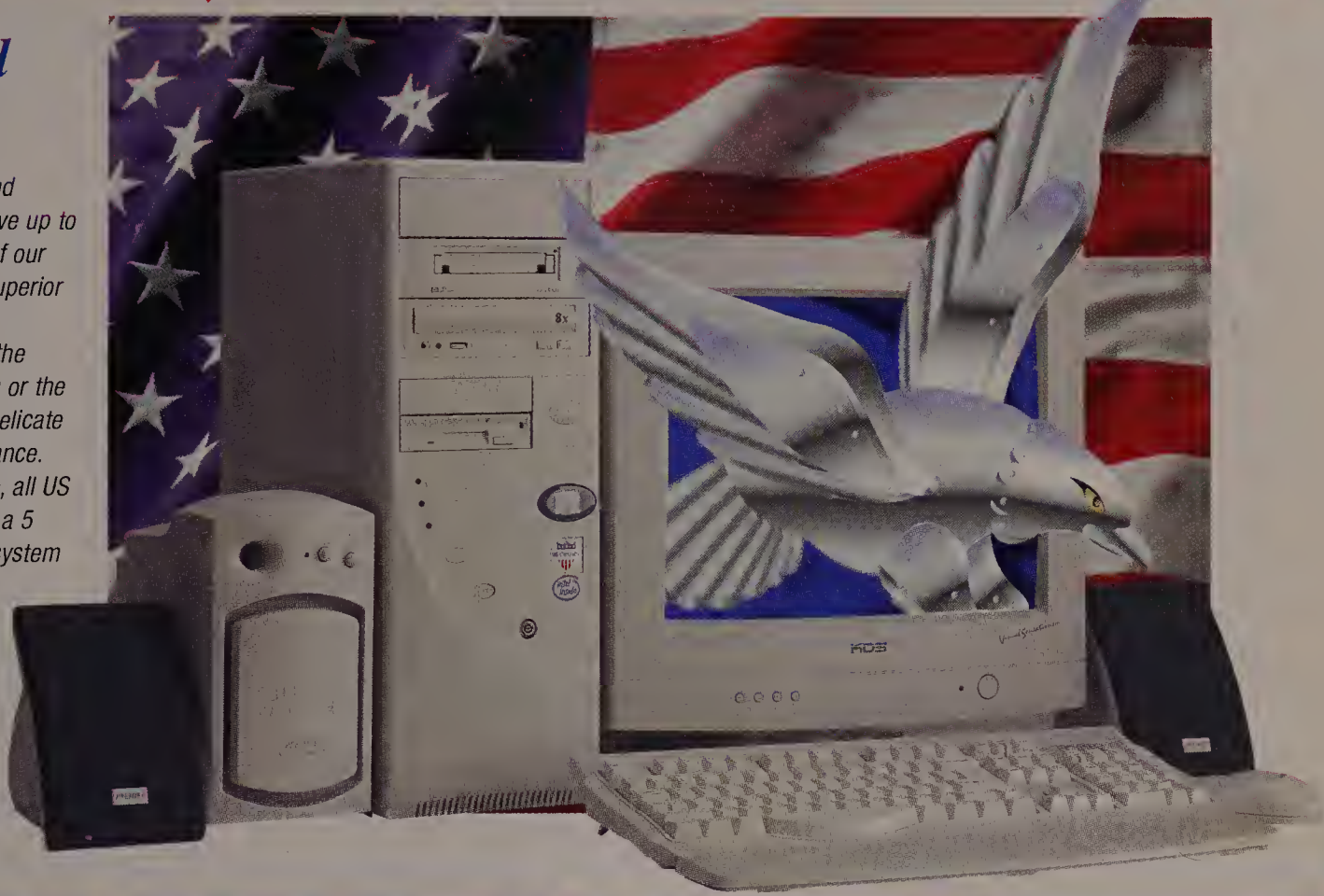
We evaluated these systems along with the others, but they didn't score high enough to reach the Top 20 Power Desktops chart. For write-ups, see PC World Online (http://www.pcworld.com/t20pcsnaps).

- **Act P-200**
- **AST Advantage 9314**
- **CLR Infinity P5-200**
- **NEC PowerMate P2200**
- **National Microcomputers P Pro 200**
- **Packard Bell Platinum 65**
- **Sony PCV-90**
- **Toshiba Infinia 7200**
- **Xi Computer Pro P-200**

PATRIOT, Pure Satisfaction...

5/3 Year Gold Warranty

US Computer's unparalleled reputation for performance and service guarantee's that we live up to our campaign promises. All of our systems are engineered for superior performance and reliability. Choose the Patriot Series for the ultimate performance solution or the new Freedom Series for the delicate balance in price and performance. Whatever solution you choose, all US computer PC's are backed by a 5 year limited warranty on the system memory and mainboard, a 3 year limited warranty on all other system parts, and a lifetime limited labor warranty. Ask your US Computer sales representative for details and upgraded service plans.



PATRIOT PRO GOLD

- **Intel Pentium®** Pro Processors
- **Intel 440FX** Chipset, Plug & Play BIOS
- **32MB EDO** RAM, **256K Internal Cache**
- **2.5GB Enhanced** IDE Hard Drive
- PCI Local Bus **Enhanced** IDE **Controller**
- 3.5" High Density Floppy Drive
- **Diamond 3D EDO MPEG 4MB** Graphics Accelerator
- Full Screen MPEG, CDI AVI, Cinepack, Indeo Playback
- **15" Digital** .28dp **NI,** Flat Screen SVGA Monitor
- **10X Speed Enhanced IDE** CD-ROM
- Yamaha C.S. Wave Table Stereo Sound Card
- **180W** Amplified External Stereo Speakers
- **33.6kbps FAX** Modem w/Voice Mail and Speaker phone
- **2 16550 UART Serial & 1 ECP/EPP Parallel Ports**
- **8 Bay Digital Tower** w/230W PS
- 104 Key Enhanced Keyboard, High Res. Mouse
- **Microsoft Office Pro & Online Internet CD Bundles**
- Microsoft Windows NT WorkStation 4.0

200MHz $2699

180MHz
$2399

PATRIOT LX 3D

- **Intel Pentium®** Processors
- Intel 430VX Chip Set/Plug & Play Bios
- **32MB EDO** RAM, **512K Pipeline Burst** Cache
- **2.5GB Enhanced** IDE Hard Drive
- PCI Local Bus **Enhanced** Hard Drive
- 3.5" High Density Floppy Drive
- **Diamond Stealth 3D MPEG 4MB EDO** Graphics Accelerator
- Full Screen Real Time 3 Dimensional Graphics Capable
- Full Screen MPEG, CDI AVI, Cinepack, Indeo playback
- **17"** Digital .28dp, **NI**, flat Screen SVGA Monitor
- **12X Speed Enhanced IDE** CD-ROM
- 3D Surround Sound Stereo Sound Card
- **180W Stereo Speakers w/Sub Woofer**
- **33.6kbps Fax** Modem w/Voice Mail and Speakerphone
- **2 16550 UART Serial & ECP/EPP Parallel Ports**
- 7 Bay Digital Tower Case w/230W PS
- 104 Key Enhanced Keyboard, High Res. Mouse
- Microsoft® Family & Online Internet CD Bundles
- Microsoft Windows®95 or DOS 6.2 & WFW 3.11

120MHz $1949 133MHz $1989
150MHz $2069 166MHz $2159

200MHz
$2359

POWERSTATION EXL

- Cyrix 6x86 Microprocessor
- 16MB EDO RAM, 512K Pipeline Burst Cache
- 2.5GB Enhanced IDE Hard Drive
- PCI Local Bus Enhanced IDE Controller
- 3.5" High Density Floppy Drive
- Matrox Millennia 2MB WRAM Graphics Accelerator
- Full Screen MPEG, CDI AVI, Cinepak, Indeo Playback
- 17" Digital .28dp, NI, Flat Screen SVGA Monitor
- 10X Speed Enhanced IDE CD-ROM
- Yamaha C.S. Wave Table Stereo Sound Card
- 180 Watt Amplified External Stereo Speakers
- 33.6 FAX Modem with Voice Mail & Speaker Phone
- 2 16550 UART Serial, 1 ECP/EPP Parallel Ports
- 7 Bay Digital Tower Case with 230W PS
- 104 Key Enhanced Keyboard, Hi Res. Mouse
- Microsoft Family & Online Internet CD Bundle
- Microsoft Windows '95, or DOS 6.2 & WFW 3.11
- 5 Year/3 Year USCD Warranty

150MHz $1849 166MHz $1969

200MHz
$2049

POWERSTATION 3D LX

- Cyrix 6x86 Microprocessor
- 16MB EDO RAM, 256K Pipeline Burst Cache
- 1.6GB Enhanced IDE Hard Drive
- PCI Local Bus Enhanced IDE Controller
- 3.5" High Density Floppy Drive
- **Diamond 3D EDO MPEG 2MB** Graphics Accelerator
- Full Screen MPEG, CDI AVI, Cinepak, Indeo Playback
- 15" Digital .28dp, NI, Flat Screen SVGA Monitor
- 10X Speed Enhanced IDE CD-ROM
- 3D Surround Sound Stereo Sound Card
- 180 Watt Amplified External Stereo Speakers
- 33.6 FAX Modem with Voice Mail & Speaker Phone
- 2 16550 UART Serial, 1 ECP/EPP Parallel Ports
- 7 Bay Digital Tower Case with 230W PS
- 104 Key Enhanced Keyboard, Hi Res. Mouse
- 19 Title & Online Internet CD Family Bundle
- Microsoft Windows '95, or DOS 6.2 & WFW 3.11
- 5 Year/3 Year USCD Warranty

150MHz $1349 200MHz $1569

166MHz
$1399

COMPUTER SHOPPER FEB-1996

All results are taken from Benchmarks Scores in February Computer Shopper 1996.

U.S. Computer Patriot LX 133MHz	78
Dell Dimension XPS P133c	68
Quantex QP5/SM-2 166MHz	70

REVIEWED IN COMPUTER SHOPPER FEB, 1996

"The Patriot excels in performance, according to our benchmarks. Its Winstone 96 score of 78 is almost 15% higher than our bench standard system."

"US Computer's Patriot 133MHz is a great deal."

intel inside PENTIUM®PRO PROCESSOR

intel inside pentium PROCESSOR

US Computer

1.800.787.4947

http://www.us-computer.com

U.S. Computer Direct Corp. Tel: 714.841.4081 • Fax: 714.841.4262

*All brand names are registered trademarks of their respective companies.
*Prices & specifications are subject to change without notice.

All products carry a One Year Warranty from U.S Computer Corp. Other Manufacturer Warranties will be warrantied by the manufacturer. We are not responsible or liable for errors in typography or Photography. Shipping and handling costs are not refundable. All returns must be sent back freight prepaid and in like new condition. U.S Computer Corp. reserves the right to charge a restocking fee if the product is sent back incomplete, damaged, missing parts, boxes, bags, manuals and drivers etc.

Intel Inside, Pentium and Triton are registered trademarks of the Intel Corporation

Circle 241 on reader service card

Just another way to access the Internet?

*Limit one free trial per individual. Valid credit card required. Additional charges may apply for certain features. Phone company charges not included. Supplement access charges may apply. To avoid being charged your first monthly fee, simply cancel your membership before your free one month trial ends. †For Basic 10 Pla and Unlimited Plan pricing after your one month trial, refer to the online Member Services or Help sites. Offer subject to change without notice.

Prodigy Internet and the Prodigy Internet logo are trademarks of Prodigy Services Corporation. Microsoft is a registered trademark of Microsoft Corporatio
©1996 Prodigy Services Corporation. All rights reserved.

Well, not exactly.

What you get with Prodigy Internet™ isn't just the easiest way of accessing the web. It's a whole new way to experience the Internet. It's personal. It's hassle-free. Simply put, it's designed with human beings in mind.

IT'S EASY. We started with the notion that the Internet should be straight-forward and simple to use. That's why Prodigy Internet is the first service that allows you to be online and on the Internet at the same time. We built it around Microsoft® Internet Explorer 3.0. And we added convenient tool and navigation bars that let you point and click wherever you want to go.

IT'S PERSONAL. Of course, since no two people are exactly alike, we made it so you can customize your home page with what's important to you, whether it's news briefs, sports updates, financial information, favorite web sites, even the weather.

IT'S FRIENDLY. If it's conversation you're looking for, we have exciting communities where you can interact with people who like what you like, from sports to music to bird-watching. And we offer hundreds of features like e-mail, chat and newsgroups. So there's always someone to talk to.

IT'S AFFORDABLE. We even designed payment plans you'll feel comfortable with. You can try it out for one free* month of unlimited use. Then, after that you get a choice, either $19.95/month for unlimited hours or $9.95/month for 10 hours.* Either way, it's easy on the wallet.

When all is said and done, it's obvious we're not just providing another way to access the Internet. Instead, we untangled the web and made it more personal. So if it's a relationship with the Internet you're looking for, call us. We'll give you one free* month to start one. And you can't get much more human than that.

1-800-PRODIGY(776-3449)x3200 / www.prodigy.com

prodigyinternet™

make it yours.

PC WORLD

TOP 20 BUDGET DESKTOPS

	SYSTEMS	Last month	Month tested	Street price (10/15/96)	CPU	Comments
1	Micron Millennia P133 800/223-6571 www.micron.com	–	NEW	$1899	Pentium-133	As fast as some P-166s; the P-150 and P-166 are also good values.
2	Dell Dimension P133v 800/388-8542 www.dell.com	1	Dec 96	$1879	Pentium-133	Fast, affordable; sound and modem are included; good first PC.
3	Dell OptiPlex GXM 5133 800/388-8542 www.dell.com	–	NEW	$2245	Pentium-133	Replacement of PC reviewed in April now has 32MB of RAM.
4	Gateway 2000 P5-133 800/846-2000 www.gw2K.com	5	Nov 96	$1709	Pentium-133	$70 price drop helps this P-133 maintain Best Buy status; fast graphics card.
5	Compaq Presario 4402 800/345-1518 www.compaq.com	–	NEW	$1999	Pentium-133	Great reliability makes up for tepid support record and limited expandability.
6	Quantex QP5/100 M-3 800/896-4898 www.quantex.com	–	Mar 96	$1499	Pentium-100	Great value, and Quantex has recently upgraded its tech support.
7	HP Vectra VE 5/133 800/752-0900 www.hp.com	7	Dec 96	$2170	Pentium-133	Corporate PC with nice touches; Unified Memory Architecture slows it down.
8	Gateway 2000 G6-180 800/846-2000 www.gw2K.com	8	Dec 96	$2324	Pentium Pro-180	Faster than a typical P-200; good workgroup server.
9	DTK Quin-55M/P133 800/289-2385 www.dtk.com	–	Dec 96	$1700	Pentium-133	$50 price cut helps move this fast PC onto chart despite poor reliability.
10	HP Vectra XM5/120 Series 4 800/752-0900 www.hp.com	10	Oct 96	$2013	Pentium-120	Well-built corporate PC backed by great reliability.
11	ProGen Discover MPEG II P150 888/776-9595 www.progen.com	13	Nov 96	$1549	Pentium-150	An option for gamers on a budget.
12	Micro Express MicroFlex PCI/5133 800/989-9900 www.wpages.com/	9	Apr 96	$1599	Pentium-133	Fast system for under $1600; latest returns indicate below-average reliability.
13	DirectWave Blue Thunder P133 MVP Pro 800/882-8108 www.directwave.com	12	Oct 96	$1699	Pentium-133	Fast for a P-133; unknown reliability and service.
14	Netis N5100 Media 800/577-7526 www.netistech.com	18	May 96	$1580	Pentium-100	Fast for a Pentium-100, but documentation is sparse.
15	Diamond Technologies P133 800/989-7253 www.diamondtech.com	–	NEW	$1650	Pentium-133	Very fast; great features such as a 33.6-kbps modem.
16	First Computer FCC P-120 800/900-1008 www.firstcomputer.com	16	Aug 96	$1399	Pentium-120	Price is hard to beat, but service and reliability are unknown.
17	Robotech Cobra XLT P-133 800/255-2215 www.robotechusa.com	19	July 96	$1799	Pentium-133	Fast home PC; spotty documentation and tech support.
18	Netis C166-PDS 800/577-7526 www.netistech.com	–	Nov 96	$2129	Cx6x86-P166+	Cyrix-based PC is faster than many P-200s.
19	Alaris Puma P166+ 800/317-2348 www.alaris.com	–	Sept 96	$1775	Cx6x86-P166+	$155 price drop puts this fast, nicely appointed system on chart.
20	Acma zPower 166V 800/786-6888 www.acma.com	17	Sept 96	$1945	Pentium-166	$50 price drop; quick multimedia system comes with PC Card slots.

Best Buy See features chart, page 206; performance chart, page 208. Recommended as home system

[1] To order fax copies of system reviews, call 800/434-4495 from a touch-tone phone and use your credit card. You can order next month's reviews in advance: Power Desktops, Budget Desktops, or Notebook PCs Top 20 charts and capsule reviews ($9.95, available December 23).

PENTIUM-133 PCs make up more than half our Budget chart, but there are faster machines here as well. The number eight Gateway G6-180, based on the Pentium Pro-180, outruns many Pentium-200 units. Netis and Alaris offer a couple of pretty snappy PCs based on Cyrix's Cx6x86-P166+ chip. These two systems perform like most Pentium-200 PCs, but their service and reliability remain a question mark. The only budget desktop we tested this month to miss the chart was Computrend's Premio P-166. It's fast and sharp-looking, but the keyboard feels stiff, and you get support only on weekdays. You can do better for $2400. For more details, visit PC World Online (http://www.pcworld.com/t20pcsnaps).

SCORECARD

★ Overall rating	Price	Vendor's system reliability	Features and design	PC WorldBench score/performance	Vendor's service and support	Fax reprint number[1]	Reader service number
92	average	best	outstanding	191/very good	best	3479	664
91	average	best	outstanding	188/very good	best	3462	665
87	expensive	best	very good	191/very good	best	3480	666
84	inexpensive	fair	very good	192/very good	good	3449	667
82	average	best	good	153/good	fair	3481	668
82	inexpensive	poor	outstanding	167/good	fair	3482	669
82	average	best	very good	166/good	fair[2]	3465	670
82	expensive	fair	outstanding	218/outstanding	good	3466	671
81	inexpensive	poor[2]	very good	190/very good	[3]	3483	672
81	average	best	good	177/good	fair[2]	3455	673
81	inexpensive	[3]	very good	183/very good	[3]	3451	674
81	inexpensive	[3]	very good	190/very good	[3]	3467	675
80	inexpensive	[3]	outstanding	194/very good	[3]	3469	676
80	inexpensive	[3]	very good	166/good	[3]	3471	677
80	inexpensive	[3]	outstanding	185/very good	[3]	3484	678
80	very inexpensive	[3]	good	178/very good	[3]	3470	679
80	average	[3]	outstanding	189/very good	[3]	3393	680
80	average	[3]	outstanding	209/very good	[3]	3485	681
80	average	[3]	very good	194/very good	[3]	3486	682
79	average	[3]	outstanding	199/very good	[3]	3429	683
Scorecard weightings	Price 25 percent	Reliability 25 percent	Features 20 percent	Performance 15 percent	Support 15 percent	All products:	906

[2] Limited data; score is based on responses for this company and average of all companies.
[3] Insufficient data.

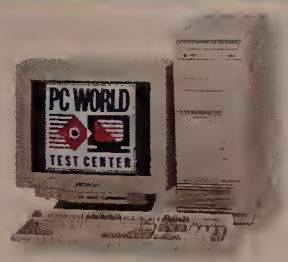
This Month's Best Buys

1 MICRON MILLENNIA P133

PRO: Fast, well built, great warranty, highly rated reliability and support

CON: No modem, no software

This $1899 Millennia P133 supersedes the one we reviewed last March, and like its predecessor, it's one of the finest deals around.



Micron Millennia P133

It's hard to find any fault in the Millennia P133. The system's design is so clean and open on the inside that it leaves you wondering if everything is really there. The motherboard is easily accessible, with minimal chances for damaging other components if you're adding expansion cards or SIMMs. There's also more space than usual to add components. Four free drive bays will let you add devices such as an extra hard disk and a tape backup drive, and there are six free expansion slots at your disposal. This Pentium-133 is quite fast, too. With a PC WorldBench score of 191, it performs as well as some Pentium-166s we've seen.

The Millennia's multimedia setup is about as good as it gets. The CD-ROM drive zips along at 8X speed. The Diamond Stealth 3D 2000 video controller comes brimming with 4MB of RAM, which means you get high-resolution images in true color—a welcome sight for graphic artists. Audio is provided by the integrated Vibra 16S sound chip and 270 series Advent speakers. The 2.1GB hard disk has plenty of room for those notoriously piggy multimedia files. Even with the smaller-than-usual 15-inch monitor (the viewable portion comes to only 13.5 inches), it's no small feat for a company to offer such a package for $1899. The system lacks a modem, however. If you want to get on the Net, you should plan to spend another $150 to $200 on a 28.8-kbps or 33.6-kbps unit.

Great support has become one of Micron's fortes. Aside from a 24-hour-a-day tech support hot line, there's a three-year parts and one-year labor warranty. A free year of on-site service is also included, and the feedback we get from our ongoing fax-back survey is that readers are happy with the service provided. In our own round of tech support calls, however, we've been experiencing 45-minute and longer waits on hold; we'll continue to track this and keep you updated.

Readers have been very satisfied with the reliability of Micron's PCs, and it's clear the company put some thought into the Millennia's documentation. Micron hasn't yet joined the growing group of vendors that provide snazzy interactive on-screen help, but the hard copy manuals are easy to read and contain plenty of diagrams. Micron offers the same configuration in a Pentium-166 model that costs $200 more. We evaluated that and found it to be an excellent value, too. ▶

TOP 20 BUDGET DESKTOPS — STANDARD FEATURES

	SYSTEMS	CPU	RAM (MB)	Secondary cache (K)	Hard drive (GB)	Graphics adapter	Video RAM (MB/type)	Monitor tube/ viewable diagonal (inches)	Screen pitch (mm)	CD-ROM drive speed
1	Micron Millennia P133*	Pentium-133	16	512	2.1	Diamond Stealth 3D 2000	4/EDO DRAM	15/13.5	.28	8X
2	Dell Dimension P133v*	Pentium-133	16	256	1.6	integrated Trio64V+	2/EDO DRAM	15/14	.25	8X
3	Dell OptiPlex GXM 5133*	Pentium-133	32	256	2.1	integrated S3 Trio64	2/DRAM	15/13.7	.28	8X
4	Gateway 2000 P5-133*	Pentium-133	16	256	2	STB Lightspeed 12B	2/MDRAM	15/13.9	.28	8X
5	Compaq Presario 4402*	Pentium-133	16	0	1.6	integrated S3 Trio64V+	1/DRAM	15/13.6	.28	8X
6	Quantex QP5/100 M-3	Pentium-100	16	256	1.6	STB Powergraph 64 Video	2/EDO DRAM	15/14	.28	8X
7	HP Vectra VE 5/133	Pentium-133	16	256	1.1	integrated SiS 6205	2/EDO DRAM	15/14	.28	8X
8	Gateway 2000 G6-180	Pentium Pro-180	16	256	3.2	STB Lightspeed 12B	2/MDRAM	15/13.9	.25	8X
9	DTK Quin-55M/P133	Pentium-133	16	512	2.1	STB Lightspeed 12B	2/MDRAM	15/13.8	.28	8X
10	HP Vectra XM5/120 Series 4	Pentium-120	16	256	1.3	integrated Trio64	2/DRAM	15/13.5	.28	–
11	ProGen Discover MPEG II P150	Pentium-150	16	512	1.3	ProGen Gold 64V+ PCI	2/EDO DRAM	15/13.7	.28	8X
12	Micro Express MicroFlex PCI/5133	Pentium-133	16	256	1.6	STB Velocity 64 Video	2/VRAM	17/15.9	.28	8X
13	DirectWave Blue Thunder P133 MVP	Pentium-133	16	512	1.3	Diamond Stealth 3D 2000	2/EDO DRAM	15/13.5	.26	8X
14	Netis N5100 Media	Pentium-100	16	256	1.6	Diamond Stealth64 Video VRAM	2/VRAM	15/13.9	.28	4X
15	Diamond Technologies P133	Pentium-133	16	512	2.1	Diamond Stealth 3D 2000	2/EDO DRAM	15/13.9	.28	8X
16	First Computer FCC P-120	Pentium-120	16	512	1.2	Matrox Millennium	2/WRAM	15/13.8	.28	6X
17	Robotech Cobra XLT P-133	Pentium-133	16	256	1.3	Number Nine 9FX Motion 331	2/EDO DRAM	17/15.4	.28	6X
18	Netis C166-PDS	Cx6xB6-P166+	32	256	2.1	Matrox Millennium	2/WRAM	15/13.9	.28	6X
19	Alaris Puma P166+	Cx6xB6-P166+	16	256	1.6	Alaris Matinee Pro	2/EDO DRAM	15/13.6	.28	6X
20	Acma zPower 166V	Pentium-166	16	256	1.3	Diamond Stealth64 Video-2001	2/EDO DRAM	15/13.7	.28	8X

* Best Buy ¹ Toll call.

2 DELL DIMENSION P133V

PRO: Fast, well designed, top reliability score

CON: Limited RAM expandability, dark monitor

The Dimension P133v's cost has risen slightly since last month, but $1879 is still a very good price for what you get. This is a powerful multimedia minitower from a company that, according to our fax-back survey, gets the top ratings for service and the reliability of its PCs. Dell's P-133 doesn't skimp on performance or features. With its 16MB of SDRAM and 256K pipeline-burst cache, it scored 188 in our PC WorldBench test suite—good for its CPU class. Our test model even came with a 16-bit sound card, something you don't usually get with a bare-bones Dell PC. (Speakers cost extra.) Dell also includes a 28.8-kbps fax-modem. Unless you confine your online activities to short e-mail messages, 28.8-kbps is the minimum speed we recommend for the Internet.

Dell Dimension P133v

With its fine stripe pitch, the Dell Trinitron monitor displays crisp images and text; however, the unit that came with our system was a little dark, and we couldn't improve the brightness. On the other hand, it does offer 14 inches of actual viewable area, generous for a monitor the manufacturer rates as 15 inches. For expanding memory, the P133v uses DIMMs, which hold more memory on a module than SIMMs. The system's two DIMM sockets can hold a total of 64MB of synchronous RAM (two 32MB DIMMs). When 64MB DIMMs become available, the system will be able to hold a total of 128MB. One DIMM socket is free in this configuration.

If you want a little extra power, there's the Dimension P200v, which we reviewed in the November issue. It's nearly identical to the P133v, but it costs $100 more and is about 10 percent faster.

3 DELL OPTIPLEX GXM 5133

PRO: Good price for a network PC, excellent reliability and support, built-in ethernet adapter

CON: No speakers

The OptiPlex GXM 5133 is a midrange model in Dell's network-ready corporate line and replaces the GXMT 5133 model we reviewed

		EXPANDABILITY						CUSTOMER SUPPORT			
Modem speed (kbps)	Sound board	Case style	Max. RAM (MB)	Maximum secondary cache (K)	Open RAM sockets	Open drive bays (ext./int.)	Open slots	Warranty for parts/labor (years)	Weekday toll-free support (hours)	Weekend support	Online support
–	integrated Vibra 16S	minitower	128	512	2	3/1	6	3/1	24	Sat., Sun.	CIS, WWW
28.8	Creative Labs Vibra 16	minitower	64	512	1	3/1	5	3/1	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW
–	integrated Vibra 16 PnP	desktop	128	512	2	1/1	5	3/3	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW
–	–	minitower	128	256	1	2/2	5	3/3	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW
33.6	integrated ESS 1BBB	desktop	128	0	2	0/0	2	1/1	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW
33.6	Ensoniq Vivo-90	minitower	128	512	2	2/1	4	3/1	15	Sat., Sun.	BBS, Prodigy, WWW
–	Sound Blaster 32 PnP	desktop	192	256	4	1/1	3	3/3	11 [1]	–	AOL, BBS, CIS, WWW
–	Ensoniq Soundscape Vivo PnP	tower	128	256	2	3/6	5	3/3	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW
–	–	minitower	128	512	2	3/3	6	2/2	9	–	WWW
–	–	desktop	128	256	4	2/0	4	3/3	11 [1]	–	AOL, BBS, CIS, WWW
33.6	Audio Drive 32 PnP	minitower	128	512	2	3/2	4	3/1	9	–	BBS
–	Sound Blaster AWE32	minitower	128	512	2	3/1	7	2/2	9.5	Sat., Sun.	WWW
28.8	Sound Blaster AWE32	minitower	256	512	2	3/0	3	3/3	11	Sat.	BBS, WWW
–	Creative Labs Vibra 16	compact	128	512	2	2/1	6	1/3	10	Sat.	BBS, WWW
33.6	Wavestar 32	desktop	128	512	3	3/0	4	1/1	9	–	BBS
–	Audio Drive 32 PnP	tower	128	512	2	3/0	6	1/lifetime	11	Sat., Sun.	WWW
33.6	Sound Blaster 16	minitower	128	512	2	3/3	4	3/1	9	–	BBS, WWW
28.8	Creative Labs Vibra 16 PnP	minitower	128	512	2	3/1	5	1/3	10	Sat.	BBS, WWW
28.8	301 ESS Es168B Audio	minitower	128	512	2	3/2	3	3/3	10	–	BBS
28.8	Sound Blaster 16	minitower	128	512	2	2/1	3	3/1	9.5	–	BBS, WWW

last April. Now it has 32MB of RAM instead of 16MB. This extra dollop of RAM may have helped the system achieve a PC WorldBench score of 191, which puts the GXM 5133 not far behind the average P-166 desktop. Many network administrators shopping for new workstations will find the built-in ethernet adapter a convenient touch. At $2245, this is a powerful PC at an affordable price.

A 2.1GB hard drive and an 8X CD-ROM drive form the disk subsystems, while video chores are handled nicely by an integrated S3 Trio 64-bit subsystem with 2MB of memory. One complaint is the lackluster display quality of the 15-inch monitor. The images were not as crisp as we're used to seeing on desktop monitors these days. The actual viewing area comes out to 13.7 inches, which is pretty much par for the course for 15-inch monitors.

The OptiPlex GXM 5133 we tested carried very few extras. No modem, software (apart from the operating system), or speakers were included with the machine. Lack of a modem is hardly a negative in a computer that's meant to be networked, but bundled software is always good to get. Sound comes from an integrated Vibra 16 sound chip.

Dell OptiPlex

Inside the box, the case was reinforced by internal cages, giving it more strength than usual. No matter how heavy a monitor you set on this midsize desktop, there's no danger of stressing vital components. Cables were tied off, and the interior was easy to move around in once the cages were removed. There was only minor flex to the unit with the exterior shell removed. We'd like to see another free bay or two (this PC has only two free drive bays), but you get five free expansion slots, which will be more than enough for most people.

Dell has continually received excellent scores from readers in our ongoing reliability and service fax-back survey. These factors, coupled with a three-year parts and labor warranty, make that part of a corporate buyer's decision a no-brainer. Excellent documentation and around-the-clock phone support for the life of the system are very positive factors as well. ▶

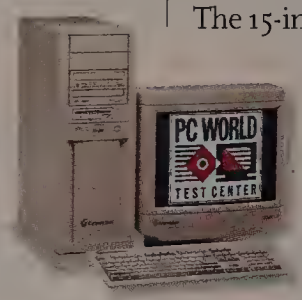
The Dell OptiPlex GXM 5133 nicely fits the bill for a no-frills corporate desktop.

4 GATEWAY 2000 P5-133

PRO: Fast, great documentation, good design

CON: No modem or sound card at this price, reliability could be better

Gateway 2000's P5-133 features a nice design, and it just got a little bit more affordable: The company shaved the price by $70 to $1709. The angular case style has a more up-to-date feel than the curvy Gateways of the past; we found it very attractive. This system is also one of the fastest P-133s we've ever tested, turning in an impressive PC WorldBench score of 192. All this helps earn the P5-133 a Best Buy. It's a great business system, but not one that we'd recommend for home use unless you add a sound card and speakers.



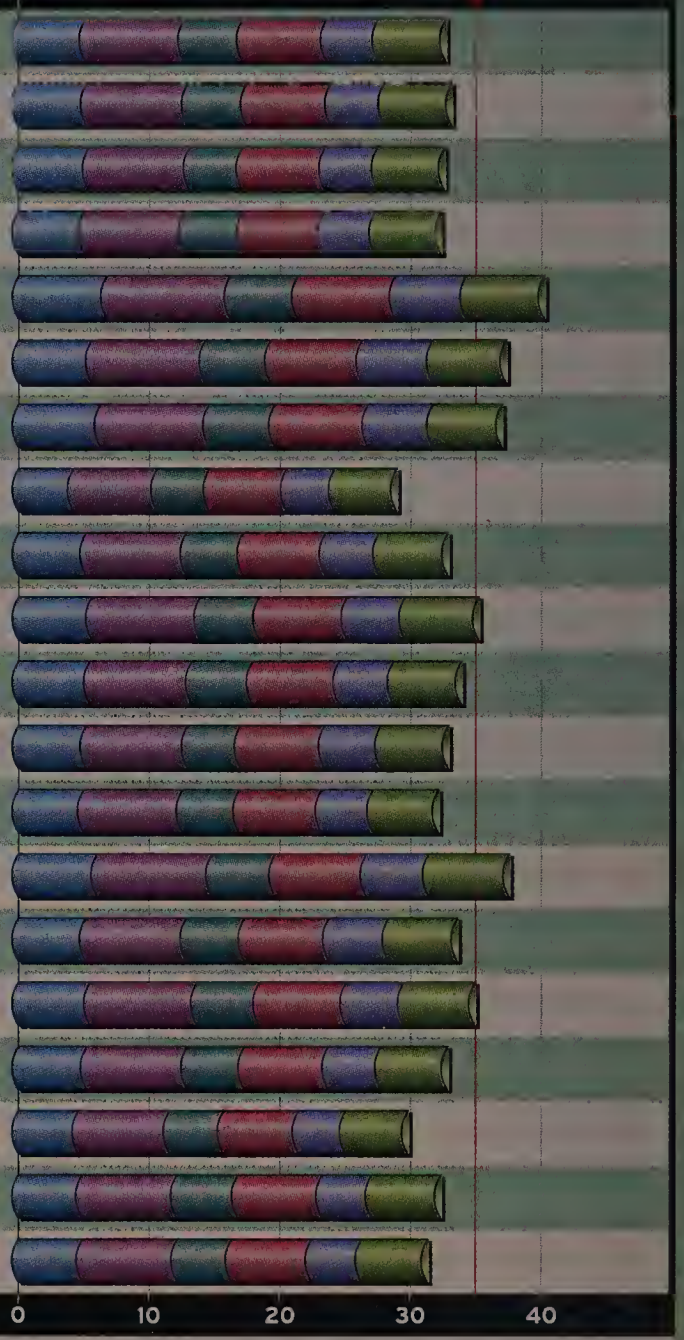
Gateway 2000 P5-133

The P5-133 we tested had a 2GB hard drive and an 8X Toshiba CD-ROM drive. The 15-inch CrystalScan monitor is a good basic display, but it's not Gateway's top of the line (the more expensive Vivitron). We can't find fault with the 2MB STB Lightspeed 128 graphics adapter, which has ranked near the top of our Top 10 Graphics ▶

TOP 20 BUDGET DESKTOPS

	SYSTEMS	CPU	RAM (MB)	Secondary cache (K)	PC WorldBench score
1	Micron Millennia P133*	Pentium-133	16	512	191
2	Dell Dimension P133v*	Pentium-133	16	256	188
3	Dell OptiPlex GXM 5133*	Pentium-133	32	256	191
4	Gateway 2000 P5-133*	Pentium-133	16	256	192
5	Compaq Presario 4402*	Pentium-133	16	–	153
6	Quantex QP5/100 M-3	Pentium-100	16	256	167
7	HP Vectra VE 5/133	Pentium-133	16	256	166
8	Gateway 2000 G6-180	Pentium Pro-180	16	256	218
9	DTK Quin-55M/P133	Pentium-133	16	512	190
10	HP Vectra XM5/120 Series 4	Pentium-120	16	256	177
11	ProGen Discover MPEG II P150	Pentium-150	16	512	183
12	Micro Express MicroFlex PCI/5133	Pentium-133	16	256	190
13	DirectWave Blue Thunder P133 MVP Pro	Pentium-133	16	512	194
14	Netis N5100 Media	Pentium-100	16	256	166
15	Diamond Technologies P133	Pentium-133	16	512	185
16	First Computer FCC P-120	Pentium-120	16	512	178
17	Robotech Cobra XLT P-133	Pentium-133	16	256	189
18	Netis C166-PDS	Cx6x86-P166+	32	256	209
19	Alaris Puma P166+	Cx6x86-P166+	16	256	194
20	Acma zPower 166V	Pentium-166	16	256	199

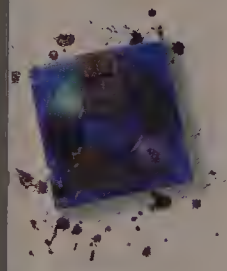
*Best Buy



Word 7.0 for Windows 95 · Excel 7.0 for Windows 95 · Picture Publisher 6.0 for Windows 95 · Paradox 5.0 for Windows · WordPerfect 6.1 for Windows · 1-2-3 release 5 for Windows

HOW WE TEST All systems are tested with PC WorldBench, PC World's application-based benchmark. A higher PC WorldBench score is better. All PCs have Windows 95, and video resolution is set to 800 by 600 in 256 colors. We run automated scripts on six popular business applications, performing common tasks such as spelling checks, scrolls, saves, sorts, and recalculations. The PC WorldBench score is a sum of the weighted result of each script: Word (25 percent), Excel (20 percent), Picture Publisher (15 percent), Paradox (15 percent), WordPerfect (15 percent), and 1-2-3 (10 percent). For more details on our benchmark and how we run it, see PC World Online (http://www.pcworld.com).

Only One Company Can Give You **Removable Storage** This Rugged and Reliable. **Fujitsu.**



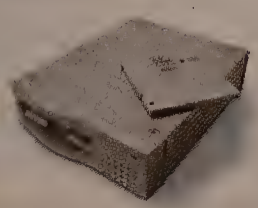
On location with the DynaMO® 230 and the DynaMO 640. When rock climbing, you'd never compromise with the tools you use. The same idea applies to backing up, transferring and transporting critical files. • That's where the DynaMO 230 and the DynaMO 640 come into the picture. They're the perfect tools for designers who need to transport and transfer graphics files, for sales organizations that need to store multimedia presentations on a single disk, and for government agencies that need to archive records. • In fact, you won't find removable storage that's more rugged or reliable. A single MO disk has a life span of over 10 million writes and over 100 million reads. • Which leads us to Fujitsu's customer support policy. No Excuses™. More than just a slogan, it's our commitment to provide you with the ultimate in service, including technical support at no charge. Which is just another way of saying, Fujitsu has set a new standard of excellence in removable storage. • The DynaMO 230 and DynaMO 640. When you add it all up, everything that matters is DynaMO driven. • DynaMO 230 and the DynaMO 640 are available wherever quality removable storage drives are sold. For more information, call 1-800-626-4686, ext. 3211. Or discover DynaMO on our website at http://www.fcpa.com.

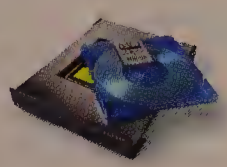
DynaMO 640

- 640MB per disk
- Backwards compatible with 540MB, 230MB and 128MB media
- Internal or external versions for desktop systems
- Interface: SCSI-2

DynaMO 230

- 230MB per disk
- Backwards compatible with 128MB media
- Internal or external versions available for portable and desktop systems





You're looking at the most reliable ways to backup, transport and transfer data ever devised—the DynaMO Portable PC Card, DynaMO 640 and DynaMO 230. The perfect solutions for people who want it all: price, performance and dependability.

FUJITSU

For your chance to win a vehicle as rugged as our drives, stop by booth 3855 at MACWORLD.

© 1997 Fujitsu Computer Products of America, Inc. All rights reserved. DynaMO is a registered trademark and No Excuses is a trademark of Fujitsu Computer Products of America, Inc. All trademarks are property of their respective companies.

No purchase necessary. Sweepstakes is open to legal US residents 18 years and older. To enter Fujitsu Land Rover Discovery General Sweepstakes, come by the Fujitsu Computer Products of America Booth at the 1997 MacWorld in San Francisco, January 7 - 10, 1997 and complete an Official Entry Form. To enter by mail, hand print your name and complete address (including zip code) plus day time and evening telephone numbers on a plain piece of 3" x 5" paper. Mail your entry in a hand addressed #10 envelope with first class postage affixed to: Fujitsu Land Rover Discovery General Sweepstakes, PO Box 18829, Irvine, CA 92623-8829. Limit one entry per person. No mechanically reproduced entries permitted. Entries must be received no later than May 12, 1997. Random drawing will be held on or about June 10, 1997. One Grand Prize: 1997 Land Rover Discovery SD, approximate retail value $34,000. All taxes (except first year vehicle registration) are the sole responsibility of the winner. Odds of winning depend on the number of eligible entries received. This sweepstakes subject to Official Rules. For a copy of Official Rules write to: Fujitsu Land Rover Discovery General Sweepstakes Rules, PO Box 18829, Irvine, CA 92623-8829. Void where prohibited by law. The vehicle awarded may differ in color and equipment from vehicle shown.

Circle 89 on reader service card

Boards chart. The P5-133's low price also includes Microsoft Office Professional. While this sounds like a single software program, it's really a suite of full-scale applications including a word processor (Word), spreadsheet (Excel), presentation graphics program (PowerPoint), and database program (Access). Gateway earns a good service and support score because of its support policies, but our readers still rate system reliability only as fair.

The Pentium-120 version of this machine, Gateway's $1659 P5-120, is also a good budget PC.

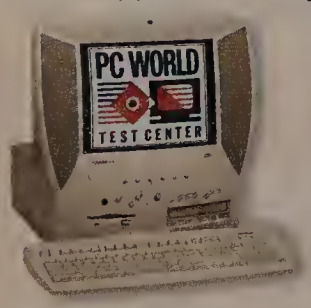
5 COMPAQ PRESARIO 4402

PRO: Compact design, good performance, 8X CD-ROM drive, 33.6-kbps modem, Compaq's PC reliability rated very highly by readers

CON: Minimal expansion, limited video memory, no secondary cache

Despite its futuristic appearance, the Compaq Presario 4402 is a throwback. Like other all-in-one Presarios before it, this multimedia system combines monitor, motherboard, and stereo speakers—in short, everything but the keyboard and mouse—in one case. But unlike its plain, boxy Presario predecessors, this new Pentium-133 boasts an eye-catching design that would fit in at the Jetsons'. Curved speakers frame each side of the display; a built-in microphone sits atop the monitor and an infrared port below it; and the PC's front panel has more push buttons, lights, and controls—27 in all—than you'd find at a nuclear power plant. Even the keyboard has a similarly sculpted style.

So what's the problem? As with the original Macintosh, the prototype of all computers cute and completely integrated, the Presario 4402's design limits its expandability and power. Unlike other P-133 systems in its price range, the Presario 4402 has no open external or internal drive bays. It offers only one free 32-bit card slot and one free 16-bit card slot, and there is no secondary cache or space to add any. Another disadvantage is that you can't reposition the speakers to fit your needs. When playing music CDs, for instance, you might want to place the speakers farther away from you—but you can't, because the speakers are joined to the display. Fortunately the sound quality is good.



Compaq Presario

Considering the above concerns, the Presario 4402 almost missed the Best Buy ranks. But its $1999 price isn't bad for a system with 16MB of RAM and a 1.6GB hard drive, from a highly reputable company. A 33.6-kbps modem is built-in, and the included Compaq Phone Center software features voice mail, which means you can turn the PC into a telephone answering machine. The 15-inch monitor is clear, bright, and crisp. However, you should buy this PC with more than 1MB of video memory.

It's the company itself that makes this system especially inviting. Many of our readers own Compaqs, and they rate the company highly in PC reliability. Support policies are good, though our readers report that Compaq could improve the quality of the phone support they're getting. Also, while Compaq offers free on-site service for the first year and 24-hour toll-free phone support, you have to pay extra if you want to extend the support beyond one year.

New This Month

The following PC made our Budget Desktops chart for the first time this month. For previously tested PCs on the chart, visit our Web page at http://www.pcworld.com/t20pcs.

15 DIAMOND TECHNOLOGIES P133

PRO: Fast, inexpensive, big hard drive, 33.6-kbps modem, sturdy construction

CON: One-year warranty, no weekend support, some readers have complained about poor service

There's a lot you could do with $1650. You could fly to Europe, buy a new Giorgio Armani outfit, or start a wine cellar in your basement. Or, if you're feeling particularly practical, you could invest in this jewel-in-the-rough Pentium-133 from Diamond Technologies. This PC is one of the best bargains around—though it can't compare to Armani in the style department. The one-year parts and labor warranty is skimpy, making this system better for technical types who can figure things out for themselves. While Diamond certainly isn't alone here, most vendors these days are offering more generous warranties of at least one year for labor and three years for parts. What's more, Diamond offers only 9 hours a day of tech support during the work week and nada on the weekend. Though we did not obtain a big enough number of responses from our ongoing fax-back survey to give Diamond official scores on reliability and service, we have received a number of complaints from readers who have been dissatisfied with the company's technical support.

Diamond Technologies

If you're savvy about the inner workings of PCs, this P-133 is a good option. It has pretty good pep, earning a PC WorldBench score of 185, which is as good as or better than that of most other Pentium-133s we've reviewed. The 2.1GB EIDE hard drive is more capacious than usual for a budget desktop, and suits it for storing lots of multimedia files. Multimedia is well covered: You get a fast CD-ROM drive and a wavetable sound card that delivers especially rich, high-fidelity sound. Net surfers should note the fast 33.6-kbps modem. If you want to browse the Web with a minimum of waiting, a 28.8- or 33.6-kbps modem is your best bet. The system is sturdily constructed, and has sensibly arranged power-on and reset buttons and an uncluttered, organized interior for easy access to slots and components. You get three free drive bays and four free slots, which is about average for desktop PCs. ▶

Beyond the Top 20

We evaluated this system along with the others, but it didn't score high enough to reach the Top 20 Budget Desktops chart. For the write-up, see PC World Online (http://www.pcworld.com/t20pcsnaps).

◆ **Computrend Premio P-166**

"With the new 32-bit Windows version, it's making a strong bid for honors as the best all-around remote control program on the market."

PC World *March 1996*

"LapLink is the easiest program to use, and it's one of the fastest and steadiest."

Federal Computer Week *Feb. 6, 1996*

"After hours of testing, a clear usability winner emerged-LapLink was far and away our testers top choice for fuss-free remote access to files, programs, or a network, and for remote training and technical support."

PC/Computing *Sept 1996*

"Its modular design shines in Microsoft's Windows 95's 32-bit multitasking enviorment. It is easy to use, and it also has features that make it easy for network administrators to manage."

LAN Times *Feb.19,1996*

"LapLink consistently outperformed pcAnywhere on our network. With LapLink, we felt as though the remote system was performing tasks locally, but when we switched to pcAnywhere we still felt as though we were using a modem."

PC Magazine *March 26, 1996*

"...if you haven't upgraded your LapLink in a while, it's time to do it again. LapLink for Windows 95 is good."

BYTE *May 1996*

"LapLink is a powerhouse for, and the granddaddy of, remote computing."

Home Office Computing *May 1996*

"LapLink is a superior remote access client for telecommuters, remote offices and even local clients"

PC Week *April 1996*

"When we matched it up against Symantec's pcAnywhere32 in our labs, we found that LapLink is the product we'd want with us on the road."

PC/Computing *May 1996*

"LapLink is still the tool of choice for laptop users. It may be the only remote access product you need."

LAN Magazine *June 1996*

"...LapLink's speed and intuitive design make it the best choice in the market."

Info World *Jan. 29,1996*

If you think file transfer is all we do, you need to catch up on your reading.

Designed for Microsoft Windows 95

Computer industry experts aren't in the habit of agreeing with each other. When they do, it's definitely worth noting.

It's also worth noting that LapLink® for Windows®95 has racked up more industry awards (fourteen of 'em, at last count) than every other remote access software package. Combined.

So if you aren't yet one of the millions on the move for whom LapLink is the perfect link to the desktop or the network, visit www.laplink.com or call 800-487-4396 today.

We'd be delighted to bring you up to date.

TRAVELING SOFTWARE

©1997 Traveling Software, Inc. LapLink is a registered trademark of Traveling Software.

Circle 243 on reader service card

PC WORLD

TOP 20 NOTEBOOK PCs

	POWER NOTEBOOKS	Last month	Month tested	Street price (10/15/96)	CPU	Comments
1	Dell Latitude LM P133ST 800/613-3355 www.dell.com	1	Oct 96	$2999	Pentium-133	Steep price cuts in recent months keep this one at the top.
2	Dell Latitude XPi P133ST 800/613-3355 www.dell.com	2	Aug 96	$3699	Pentium-133	Expensive for a unit without a CD-ROM drive, but still an excellent value.
3	Gateway 2000 Solo 2100 P-133 800/846-2000 www.gw2K.com	–	NEW	$4599	Pentium-133	Awesome notebook held back by Gateway's anemic support record.
4	Compaq LTE 5250 800/345-1518 www.compaq.com	3	Dec 96	$4198	Pentium-120	Exceptionally well built and fast; note small screen size on this model.
5	IBM ThinkPad 760E 800/772-2227 www.pc.ibm.com	7	Sept 96	$5317	Pentium-133	$931 price drop helps keep this classy notebook on the chart.
6	IBM ThinkPad 560 P100 800/772-2227 www.pc.ibm.com	–	Nov 96	$2814	Pentium-100	Price hike moves this notebook from the Budget to the Power chart.
7	NEC Versa 6030H 800/632-4636 www.nec.com	8	Nov 96	$4195	Pentium-133	Quick P-133 with fine screen and built-in modem holds fast on chart.
8	Toshiba Satellite Pro 410CDT 800/457-7777 www.toshiba.com	–	Apr 96	$2799	Pentium-90	This veteran is slowest on chart these days; has a true-color screen.
9	Compaq Armada 4120T 800/345-1518 www.compaq.com	9	Nov 96	$4298	Pentium-120	Fairly fast, modular multimedia notebook uses up to three batteries at once.
10	Toshiba Tecra 720CDT 800/457-7777 www.toshiba.com	10	Sept 96	$5399	Pentium-133	Pricey and heavy, but performs well and has a true-color screen.
	BUDGET NOTEBOOKS					
1	AcerNote Light 356 800/733-2237 www.acer.com	5	Sept 96	$1699	Pentium-100	Price now $300 lower on slim, comfortable notebook; below-average screen.
2	Digital HiNote VP 800/642-4532 www.digital.com	6	Sept 96	$1999	Pentium-100	$400 price drop on fast, light, well-designed note with bright screen.
3	Toshiba Satellite Pro 420CDS 800/457-7777 www.toshiba.com	4	Sept 96	$2499	Pentium-100	Best multimedia notebook under $2500; one of fastest budget portables.
4	Sharp PC-3030 800/237-4277 www.sharp-usa.com	10	Dec 96	$1599	Pentium-100	Huge $700 price cut, long battery life.
5	AST Ascentia J30 800/876-4278 www.ast.com	–	July 96	$2399	Pentium-100	Big $600 price cut on attractive, lightweight note with long battery life.
6	Fujitsu Montego 888/466-8434 www.fujitsu-pc.com	–	Nov 96	$2694	Pentium-100	Over $600 price drop on quick, light note with long warranty.
7	Toshiba Satellite 110CT 800/457-7777 www.toshiba.com	7	Nov 96	$2499	Pentium-100	Great budget notebook with active-matrix screen; needs more RAM.
8	Broadax NP8662D 800/872-4547 www.bsicomputer.com	9	Aug 96	$2085	Pentium-120	Speedy, but support policies are undistinguished.
9	Canon Innova Book 360CD 800/848-4123 www.canon.com	–	Sept 96	$2199	Am5x86-P75	This Innova is not very innovative, but good all around.
10	DTK DTN-5A120C 800/289-2385 www.dtk.com	–	Aug 96	$2650	Pentium-120	Fairly generic multimedia notebook, but fast.

Best Buy See features chart, page 214; performance chart, page 216.

[1] To order fax copies of system reviews, call 800/434-4495 from a touch-tone phone and use your credit card. You can order next month's reviews in advance: Power Desktops, Budget Desktops, or Notebook PCs Top 20 charts and capsule reviews ($9.95, available December 23).

WHEN WE FIRST STARTED testing Windows 95 notebooks, many battery lives were in the 1.5-to-3-hour range. Now half of the notebooks on our charts have 4-hour-plus battery lives. The most interesting notebook we evaluated this month was HP's Omnibook 5500CS. It's hobbled by a pale dual-scan screen, but its 4GB/sec infrared port allows wireless high-speed LAN connections. Toshiba's Satellite 100CS and the WinBook XP5 series of notebooks have been discontinued. For more details on the notebooks that missed the charts, visit PC World Online (http://www.pcworld.com/t20pcsnaps).

SCORECARD

★ Overall rating	PC WorldBench score/ rating	Price	Vendor's system reliability	Features and design	Vendor's service and support	Battery life (hours:min)/ rating	Traveling weight	Fax reprint number[1]	Reader service number
87	180/outstanding	inexpensive	fair	very good	good [2]	4:32/good	heavy	3779	684
87	166/very good	average	fair	very good	good [2]	5:20/very good	average	3771	685
87	186/outstanding	average	good	outstanding	fair	3:03/good	average	3797	686
84	149/very good	average	good	good	good	5:42/very good	average	3793	687
84	177/outstanding	expensive	fair	very good	fair	2:02/satisfactory	average	3773	–
84	135/good	inexpensive	fair	good	fair	3:35/good	very light	3789	–
84	174/outstanding	average	fair	very good	fair	3:04/good	heavy	3785	688
82	125/good	inexpensive	good	good	fair [2]	5:03/very good	heavy	3798	689
82	143/good	average	good	very good	good	4:27/good	heavy	3786	690
82	160/very good	expensive	good	outstanding	fair	4:23/good	very heavy	3772	691
Scorecard weightings	Performance 22 percent	Price 14 percent	Reliability 22 percent	Features 16 percent	Support 10 percent	Battery life 8 percent	Weight 8 percent		
79	118/good	inexpensive	[3]	good	[3]	2:57/good	light	3777	692
79	139/very good	average	[3]	good	[3]	3:36/good	light	3776	693
79	142/outstanding	expensive	good	good	fair	4:02/good	heavy	3771	694
78	89/good	very inexpensive	[3]	satisfactory	[3]	4:56/very good	light	3797	695
78	117/good	average	fair [2]	good	fair [2]	5:12/very good	light	3799	696
76	136/very good	expensive	[3]	good	[3]	4:56/very good	light	3787	697
76	98/good	expensive	good	good	fair	3:35/good	average	3792	698
73	141/outstanding	average	[3]	good	[3]	2:10/satisfactory	heavy	3796	699
73	83/satisfactory	average	[3]	good	[3]	3:21/good	average	3800	700
72	144/outstanding	expensive	[3]	very good	[3]	2:16/satisfactory	heavy	3801	701
Scorecard weightings	Performance 14 percent	Price 22 percent	Reliability 22 percent	Features 16 percent	Support 10 percent	Battery life 8 percent	Weight 8 percent	All products:	907

[2] Limited data; score is based on responses for this company and average of all companies.
[3] Insufficient data.

POWER NOTEBOOKS

This Month's Best Buys

1 DELL LATITUDE LM P133ST

PRO: Large, crisp screen; terrifically fast

CON: None significant

Dell just cut the price of the Latitude LM P133ST by $200, bringing it to $2999. This Pentium-133 multimedia notebook performs like a P-133 *desktop*. In our test, the Dell managed to wring 4.5 hours per charge out of its lithium ion battery. The system comes with good integrated stereo speakers. The Latitude LM is very sturdy and has a comfortable keyboard and smooth touchpad. Dell's service is good, according to our ongoing reader fax-back survey. Support policies are strong and include a three-year warranty on parts and one year on labor, and 24-hour toll-free technical support. Documentation, both on-screen and printed, is very good. ▶

Dell Latitude LM

TOP 20 NOTEBOOK PCs — STANDARD FEATURES

	POWER NOTEBOOKS	CPU	Traveling weight (pounds)[1]	RAM (MB)	Hard drive (MB)	Color screen type	Screen diagonal (inches)	Screen resolution	Maximum screen colors	Battery type	Pointing device
1	Dell Latitude LM P133ST*	Pentium-133	8.8	16	810	active	12.1	800 x 600	256	lithium ion	touchpad
2	Dell Latitude XPi P133ST*	Pentium-133	7.2	24	1215	active	11.3	800 x 600	256	lithium ion	trackball
3	Gateway 2000 Solo 2100 P-133	Pentium-133	8.2	40	1440	active	12.1	800 x 600	65,536	lithium ion	touchpad
4	Compaq LTE 5250	Pentium-120	8.4	16	810	active	10.4	800 x 600	65,536	NiMH	eraserhead
5	IBM ThinkPad 760E	Pentium-133	7.8	24	1080	active	12.1	800 x 600	65,536	lithium ion	eraserhead
6	IBM ThinkPad 560 P100	Pentium-100	5.8	16	810	dual-scan	11.3	800 x 600	256	lithium ion	eraserhead
7	NEC Versa 6030H	Pentium-133	8.6	16	1358	active	12.1	800 x 600	65,536	lithium ion	touchpad
8	Toshiba Satellite Pro 410CDT	Pentium-90	9	16	814	active	11.3	800 x 600	16.8 million	lithium ion	eraserhead
9	Compaq Armada 4120T	Pentium-120	10	16	1080	active	11.8	800 x 600	65,536	lithium ion	touchpad
10	Toshiba Tecra 720CDT	Pentium-133	10.6	16	1130	active	12.1	1024 x 768	16.8 million	lithium ion	eraserhead
	BUDGET NOTEBOOKS										
1	AcerNote Light 356*	Pentium-100	6.8	16	810	dual-scan	10.4	640 x 480	65,536	NiMH	touchpad
2	Digital HiNote VP*	Pentium-100	6.8	16	810	dual-scan	10.4	800 x 600	256	NiMH	touchpad
3	Toshiba Satellite Pro 420CDS	Pentium-100	8.8	16	772	dual-scan	11.3	800 x 600	65,536	lithium ion	eraserhead
4	Sharp PC-3030	Pentium-100	6.8	8	543	dual-scan	11.3	800 x 600	65,536	lithium ion	touchpad
5	AST Ascentia J30	Pentium-100	6.6	8	810	active	11.3	800 x 600	65,536	lithium ion	eraserhead
6	Fujitsu Montego	Pentium-100	6.4	16	1083	active	10.4	800 x 600	256	lithium ion	eraserhead
7	Toshiba Satellite 110CT	Pentium-100	7.4	8	814	active	11.3	800 x 600	65,536	NiMH	eraserhead
8	Broadax NP8662D	Pentium-120	9.6	16	811	dual-scan	11.3	800 x 600	256	NiMH	touchpad
9	Canon Innova Book 360CD	Am5x86-P75	8.2	8	814	dual-scan	10.4	640 x 480	256	NiMH	touchpad
10	DTK DTN-5A120C	Pentium-120	9.4	16	810	active	10.4	800 x 600	256	NiMH	touchpad

*Best Buy ● Yes ○ No [1] Includes computer, adapter, power cord, floppy drive, and CD-ROM drive if notebook has one. [2] Toll call.

2 DELL LATITUDE XPI P133ST

PRO: Fast, long battery life, good screen

CON: No internal CD-ROM drive option

If you don't need a CD-ROM drive in your power notebook, then the $3699 Dell Latitude XPi P133ST (down $700 from last month) is your best choice. It's not as fast as its top-ranking sibling, but its PC WorldBench score of 166 is still solid. Plus, the XPi's long 5.3-hour battery life is exceptional, and at 7.2 pounds, the system is a pound and a half lighter than the LM P133ST.

Dell Latitude XPi

The XPi's NeoMagic video chip has a fast 128-bit core and 1MB of video RAM to accelerate display. The crisp 11.3-inch active-matrix screen has 800 by 600 resolution. The Latitude XPi is sturdy, but its keyboard is cramped and the trackball a bit unruly. Bundled software includes Traveling Software's LapLink, a file transfer program, and Starfish's Sidekick 95, a personal information manager.

New This Month

The following PC made our Power Notebooks chart for the first time this month. For previously tested PCs on the chart, visit our Web page at http://www.pcworld.com/t20pcs.

3 GATEWAY 2000 SOLO 2100 P-133

PRO: Outstanding performance, top-notch display, lots of memory, large hard drive

CON: Slim warranty, subpar service and support

Gateway's been so good at putting out attractive systems, it's a shame it can't seem to pull its service and support act together. But this sturdy $4599 notebook is the fastest we've tested; it performs like a Pentium-166 desktop. The 40MB of RAM no doubt helped. The unit's 1.4GB hard drive is particularly gener-

Gateway Solo 2100

		EXPANDABILITY					CUSTOMER SUPPORT			
CD-ROM drive speed	Modem speed (kbps)	Maximum RAM (MB)	Modular expansion bays	Bay for second battery	Optional docking station	Infrared port	Warranty for parts/labor (years)	Weekday toll-free support (hours)	Weekend support	Online support
6X	–	40	1	○	●	●	3/1	24	Sat., Sun.	AOL, BBS, CIS, WWW
–	–	40	0	○	●	●	3/1	24	Sat., Sun.	AOL, BBS, CIS, WWW
6X	–	40	1	●	●	●	1/1	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW
6X	–	72	1	●	●	●	3/3	24	Sat., Sun.	AOL, CIS, Prodigy, WWW
–	28.8	80	1	●	●	●	3/3	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW
–	–	24	0	○	○	●	1/1	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW
6X	28.8	48	1	●	●	●	3/3	24	Sat., Sun.	AOL, BBS, CIS, MSN, WWW
4X	–	40	0	○	●	●	3/3	24	Sat., Sun.	BBS, CIS, MSN, WWW
4X	–	48	1	●	●	●	3/3	24	Sat., Sun.	AOL, CIS, Prodigy, WWW
6X	28.8	144	1	○	●	●	3/3	24	Sat., Sun.	BBS, CIS, MSN, WWW
–	–	40	0	○	○	○	3/3	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW
–	–	40	1	●	●	○	1/1	14	–	AOL, BBS, CIS, WWW
6X	–	40	1	○	●	●	3/3	24	Sat., Sun.	BBS, CIS, MSN, WWW
–	–	40	0	○	○	●	1/1	24	Sat., Sun.	BBS, CIS, WWW
–	14.4	40	0	○	●	●	3/3	24	Sat., Sun.	AOL, BBS, CIS, Prodigy, WWW
–	–	40	0	●	○	●	3/3	24	Sat., Sun.	–
–	–	40	0	○	●	○	1/1	24	Sat., Sun.	BBS, CIS, MSN, WWW
4X	–	40	0	○	●	●	1/1	9 [2]	–	BBS
4X	–	32	0	○	○	●	1/1	18	Sat., Sun.	BBS, CIS, WWW
4X	28.8	40	0	○	○	●	2/2	9	–	WWW

ous for a notebook. The 6X CD-ROM drive is removable; into the same bay you can put a floppy drive or an additional battery. A single battery pack lasted for 3 hours on a charge in our run-down test.

The screen was great: 12.1 inches of sharp, bright, and clear text and graphics, displayed in super-VGA resolution. The two speakers are located on the keyboard wrist rest—we'd rather see them on the display panel, where they can project sound better. However, the included set of Koss headphones works very nicely.

Gateway also included Microsoft Office Professional, a suite of four major applications. The documentation is easy to follow and designed for a quick read.

BUDGET NOTEBOOKS

This Month's Best Buys

1 ACERNOTE LIGHT 356

PRO: Great price, light weight, comfortable keyboard, three-year warranty

CON: Slow for a P-100 note with this configuration, dull screen

Acer made some mighty deep price cuts on its AcerNote Light. Now, a terrific $1699 price makes this one of the least expensive notebooks on the Budget chart.

Acer bundled a couple of useful programs (Sidekick and Quicken). This unit isn't as slim as some notebooks we've seen, but it's still just 2 inches thick. And the keyboard and touchpad are comfortable to use.

AcerNote Light 356

This notebook could use a better display; the colors on the 10.4-inch dual-scan panel looked a little washed out. Acer backs its notebooks with a strong warranty: During the first year, the company will replace a defective notebook; over the next two years, you can send it in to be fixed at no extra cost. Technical support is available around the clock but is free only for the first year. After that, you can pay for a variety of support plans. ▶

2 DIGITAL HINOTE VP

PRO: Exceptional P-100 performance, good battery life, bright display for a dual-scan screen

CON: No built-in CD-ROM option, sparse software bundle

Digital HiNote VP

A large price drop to $1999 makes this light and lively notebook a Best Buy. With a PC WorldBench score of 139, the HiNote VP is very fast, and its keyboard is roomy, comfortable, and responsive. You control the pointer with a touchpad that's easy to use. The system's 10.4-inch screen, which has 256 colors, looks sharp for a dual-scan and has excellent controls for brightness and contrast. Digital backs the HiNote VP with a one-year warranty. Toll-free technical support is limited to weekdays. ■

Beyond the Top 20

We also evaluated the following systems, but they didn't reach the Top 20. For write-ups, see PC World Online (http://www.pcworld.com/t20pcsnaps).

- **Fujitsu Monte Carlo**
- **HP Omnibook 5500CS**
- **Nimantics Orion 6X P-166**
- **Sceptre Pentium 133 Sound Note**
- **Sharp PC 9070**
- **Texas Instruments TravelMate 6050**

TOP 20 NOTEBOOK PCs

	POWER NOTEBOOKS	CPU	RAM (MB)	Secondary cache (K)	PC WorldBench score
1	Dell Latitude LM P133ST*	Pentium-133	16	256	180
2	Dell Latitude XPi P133ST*	Pentium-133	24	256	166
3	Gateway 2000 Solo 2100 P-133	Pentium-133	40	256	186
4	Compaq LTE 5250	Pentium-120	16	256	149
5	IBM ThinkPad 760E	Pentium-133	24	256	177
6	IBM ThinkPad 560 P100	Pentium-100	16	–	135
7	NEC Versa 6030H	Pentium-133	16	256	174
8	Toshiba Satellite Pro 410CDT	Pentium-90	16	–	125
9	Compaq Armada 4120T	Pentium-120	16	256	143
10	Toshiba Tecra 720CDT	Pentium-133	16	256	160
	BUDGET NOTEBOOKS				
1	AcerNote Light 356*	Pentium-100	16	–	118
2	Digital HiNote VP*	Pentium-100	16	–	139
3	Toshiba Satellite Pro 420CDS	Pentium-100	16	–	142
4	Sharp PC-3030	Pentium-100	8	–	89
5	AST Ascentia J30	Pentium-100	8	–	117
6	Fujitsu Montego	Pentium-100	16	–	136
7	Toshiba Satellite 110CT	Pentium-100	8	–	98
8	Broadax NP8662D	Pentium-120	16	256	141
9	Canon Innova Book 360CD	Am5xB6-P75	8	–	83
10	DTK DTN-5A120C	Pentium-120	16	256	144

*Best Buy

Word 7.0 for Windows 95 · Picture Publisher 6.0 for Windows 95 · WordPerfect 6.1 for Windows · Excel 7.0 for Windows 95 · Paradox 5.0 for Windows · 1-2-3 release 5 for Windows

HOW WE TEST All systems are tested with PC WorldBench, PC World's application-based benchmark. A higher PC WorldBench score is better. All PCs have Windows 95, and video resolution is set to 800 by 600 in 256 colors. We run automated scripts on six popular business applications, performing common tasks such as spelling checks, scrolls, saves, sorts, and recalculations. The PC WorldBench score is a sum of the weighted result of each script: Word (25 percent), Excel (20 percent), Picture Publisher (15 percent), Paradox (15 percent), WordPerfect (15 percent), and 1-2-3 (10 percent). For more details on our benchmark and how we run it, see PC World Online (http://www.pcworld.com).

C O M P U T I N G W I T H O U T L I M I T S™

When The Armed Forces Realized That Our TurboChip Could More Than Double The Speed Of Their 486s, They Decided To Pick Some Up.

The military has to be able to act quickly, and so do their computers. Maybe that's why they decided to upgrade their 486s with Kingston® TurboChips—an approved component on the GSA purchasing schedule. The TurboChip™ can extend the life of your fleet, too, whether you have 486-based DX2, DX, SX2, or SX systems. In the words of an Army computer scientist at the Army's Pentagon Automation Technology Branch, "The Kingston chip was completely compatible with all our systems and had an amazing performance improvement."* The TurboChip's 5×86 clock-quadrupled technology helps your system run up to three times faster with all the power you need to run today's demanding software. Designed with AMD's Am 5×86–P75 CPU, it upgrades most IBM-compatible desktop systems. And since the TurboChip is a chip-for-chip replacement upgrade, it's easy to install. Plus, it preserves your system configuration. Call today to find out why the military says, "Looking at the true cost of installing an upgrade CPU, the Kingston unit is a steal."

Unleashes the power of Windows NT™4.0

Kingston® TECHNOLOGY

For more information call us at (800) 588-5517 ISO 9001 SGS Visit our Web site: http://www.kingston.com/pcw.htm

CPU by AMD Am5x86-P75

*10/31/96 evaluation by Ron Jarmuth, Chief Automation Technology Branch, HQDA–IMCEN, Pentagon Automation Technology Branch. Kingston Technology Company, 17600 Newhope Street, Fountain Valley, CA 92708 USA, (714) 435-2600, Fax (714) 435-2699. © 1996 Kingston Technology Company. All rights reserved. Kingston is a registered trademark and Computing Without Limits and TurboChip are trademarks of Kingston Technology Company. Windows NT is a registered trademark of Microsoft Corporation.

Circle 128 on reader service card

THE WORLD LEADER IN GRAPHICS INTRODUCES...

COREL DRAW™ 7

Created for the professional illustrator, graphic artist and desktop publisher, CorelDRAW™ 7 makes optimum performance its top priority. With interactive tools and utilities, plus Corel PHOTO-PAINT™ 7 for photo editing and bitmap creation, and CorelDREAM 3D 7 for 3D modeling and rendering, CorelDRAW 7 is all you need to explore your creativity!

Productivity

- Context-sensitive Property Bar, providing key functionality at your fingertips
- Click-and-drag transparency, fountain fills and blending
- Optimized performance: faster open, save, import, export and redraw
- Layer editing for more flexible image compositing

Power

- Linked Color Styles for quick re-coloring of illustrations
- Find and replace colors, outlines, fonts and more
- Natural Pen and natural media brush tools

Precision

- 0.1 micron precision; zoom levels to over 400,000%
- Kodak Digital Science™ Color Management System for accurate color representation during scanning, display and printing

INCLUDES:

CorelDRAW™ 7
Illustration and Page Layout

Corel PHOTO-PAINT™ 7
Photo Editing and Bitmap Creation

CorelDREAM 3D 7
3D Modeling and Rendering

Plus!

- Eight powerful utilities
- 32,000 clipart images and symbols
- 1,000 photos
- 1,000 TrueType® and Type 1 fonts
- Over 450 CorelDRAW™ templates
- 250 3D models

Circle 93 on reader service card

Corel, Official World Title Sponsor of the COREL WTA TOUR

Official Worldwide Sponsor of Bobsleigh

Visit any of our stores or call our nationwide toll-free number.

COMPUSA®
THE COMPUTER SUPERSTORE℠
1-800-COMPUSA
1-800-266-7872

$219.00* Upgrade from CorelDRAW 3, 4, 5 or 6

$449.00* Full CD-ROM version

*US$ plus applicable taxes.

KUR-0233-US

http://www.corel.com
Call now for faxed literature!
1-613-728-0826 ext. 3080
Document # 1085

Corel, CorelDRAW and Corel PHOTO-PAINT are either trademarks or registered trademarks of Corel Corporation in Canada, the United States and/or other countries.
All other product and company names are trademarks or registered trademarks of their respective companies

Win a DTK Quin-55M/P133

Have you ever contacted your PC maker for service and support? Or has your PC been trouble-free? Tell us about it! Fill out and fax in the questionnaire below—even if you have no problems to report, and even if you have responded to this survey before—and we'll enter you in a drawing to win a DTK Quin-55M/P133, a Pentium-133 PC in this month's Top 20. Send in a separate copy of the survey for each of your PCs.

HOW TO ENTER: FOR BEST RESULTS, PHOTOCOPY THIS PAGE. Fax your completed survey to 415/357-4522. Do NOT fax a cover page. Or mail it to *PC World*, Box 1-SS, c/o 800-SCAN, 543 Howard St., San Francisco, CA 94105-3013. Surveys must be received by January 31.
PRIZE: One entry per person. IDG employees and their families are not eligible. One prize will be awarded through a random drawing. *PC World* will make reasonable efforts to contact winners by telephone and fax. If *PC World* is unable to do so within 30 days of the drawing, a new winner will be selected. No purchase necessary. Void where prohibited by law.
HOW TO FILL OUT THE FORM: Print your name (block capital letters) and your fax number, and fill the circles for each digit of your daytime phone number. Then fill out the questionnaire. AVOID GOING OUTSIDE THE LINES!

LAST, FIRST NAME

FAX NUMBER — —

ZIP CODE

Please fill in your daytime phone number below.

1	○	○	○	○	○	○	○	○	○	○
2	○	○	○	○	○	○	○	○	○	○
3	○	○	○	○	○	○	○	○	○	○
4	○	○	○	○	○	○	○	○	○	○
5	○	○	○	○	○	○	○	○	○	○
6	○	○	○	○	○	○	○	○	○	○
7	○	○	○	○	○	○	○	○	○	○
8	○	○	○	○	○	○	○	○	○	○
9	○	○	○	○	○	○	○	○	○	○
0	○	○	○	○	○	○	○	○	○	○

How did you get this copy of *PC World*?
○ By subscription ○ On the newsstand ○ From someone else

ABOUT YOUR PC

Who is the manufacturer of the PC you use most frequently?

○ Acer ○ Acma ○ ALR ○ Apple ○ AST ○ AT&T (NCR) ○ Austin (IPC) ○ Axik ○ Blackship ○ Canon ○ Compaq ○ Compudyne
○ Computrend ○ Comtrade ○ CTX ○ Dell ○ Diamond ○ Digital (DEC) ○ DTK ○ EPS ○ Epson ○ Everex ○ Future Tech ○ Gateway 2000
○ Hewlett-Packard ○ HiQ ○ Hyundai ○ IBM ○ Insight ○ Intelesys ○ Leading Edge ○ Micro Express ○ Micron ○ Midwest Micro ○ MIS ○ Nat'l Micro
○ NEC ○ Netis ○ Packard Bell ○ Panasonic ○ PerComp ○ Pionex ○ Polywell ○ Quantex ○ Robotech ○ Samsung ○ Sharp ○ Swan
○ Tangent ○ Texas Instruments ○ Toshiba ○ Twinhead ○ USA Flex ○ Vektron ○ VTech (Expotech, Laser) ○ WinBook ○ Zenith (ZDS) ○ Zenon ○ Zeos ○ Other

What size is this PC?
○ Desktop ○ Notebook/laptop ○ Handheld

What is the CPU?
○ PowerPC ○ Pentium ○ 80486 ○ 80386 ○ Other

Where did you buy this PC?
○ Local dealer ○ Mail/phone order ○ Direct from field sales force ○ Membership discount store ○ Computer superstore ○ Home electronics store ○ Retail store ○ Value-added reseller ○ Other

After ordering, how long did it take to get your PC?
○ Less than 1 week ○ 1-2 weeks ○ 3-4 weeks ○ More than 4 weeks

Who set up your PC?
○ Dealer/retailer/VAR ○ Staff computer technician ○ Self or coworker

Where do you use this PC? ○ At home/home office ○ At work ○ Both

WHEN YOU FIRST GOT YOUR PC

When did you buy this PC? (Specify month and year.)

○ Jan ○ Feb ○ Mar ○ Apr ○ May ○ June ○ July ○ Aug ○ Sept ○ Oct ○ Nov ○ Dec
○ 92 ○ 93 ○ 94 ○ 95 ○ 96 ○ 97

When you first set up your PC, were any components "dead on arrival" (DOA)?
○ Yes ○ No ○ Don't know

If so, which component was it? (Mark all that apply.)
○ Battery ○ CD-ROM ○ CPU ○ Floppy drive ○ Graphics/video board ○ Hard drive ○ Keyboard ○ Memory ○ Modem/fax board ○ Monitor/screen ○ Motherboard ○ Mouse ○ Power supply ○ Sound board ○ Other

Did your problem occur only after you added your own hardware or software?
○ Yes ○ No ○ Don't know

Would you buy this brand of PC again?
○ Yes ○ No ○ Not sure

How many times have you had a problem with this PC?
○ No problem ever ○ One ○ Two ○ Three ○ Four ○ More than four

If you have had a problem that you have not reported in a previous survey, please fill out the right column. If you are reporting a DOA for the first time, skip to the service section.

NEW PROBLEM REPORT

Answer for the most recent problem—*other than DOA*—not reported in a prior survey.

When did this problem occur? (Specify month and year.)

○ Jan ○ Feb ○ Mar ○ Apr ○ May ○ June ○ July ○ Aug ○ Sept ○ Oct ○ Nov ○ Dec
○ 92 ○ 93 ○ 94 ○ 95 ○ 96 ○ 97

How long after you purchased your PC did the problem occur?
○ Less than 1 month ○ 1-3 months ○ 4-6 months ○ 7-12 months ○ More than 12 months ○ Not sure

Did the problem occur as a result of adding new hardware or software?
○ Yes ○ No ○ Don't know

Did the problem occur under warranty?
○ Yes ○ No ○ Don't know

What was the problem finally identified as? (Mark all that apply.)
○ Faulty component ○ Incorrectly installed software ○ Wrong configuration ○ Faulty peripheral ○ Device conflicts ○ OS problem ○ Other ○ Don't know

If a component failed, which one was it? (Mark all that apply.)
○ Battery ○ CD-ROM ○ CPU ○ Floppy drive ○ Graphics/video board ○ Hard drive ○ Keyboard ○ Memory ○ Modem/fax board ○ Monitor/screen ○ Motherboard ○ Mouse ○ Power supply ○ Sound board ○ Other

SERVICE

Please use this section to describe the service and support you received for the problem reported above or the DOA reported at left.

Who fixed your PC?
○ Manufacturer ○ Dealer/store where purchased ○ Manufacturer's authorized repair technician ○ Self ○ Other

What types of service and support did you receive? (Mark all that apply.)
○ Phone ○ On site ○ In store ○ System swap ○ Component swap ○ Factory return

If you received phone service, how long were you on hold?
○ Not at all ○ Less than 1 minute ○ 1-2 minutes ○ 3-5 minutes ○ 6-10 minutes ○ 11-20 minutes ○ More than 20 minutes

How long did it take before you talked to the person who finally helped you?
○ Less than 15 minutes ○ 15 minutes-1 hour ○ 2-5 hours ○ 6-10 hours ○ 11-24 hours ○ 1½-2 days ○ 3-5 days ○ 1 week or more

How long did it take to resolve the problem completely?
○ 1-2 days ○ 3-7 days ○ 8-14 days ○ 15-30 days ○ More than 1 month ○ Never resolved ○ Awaiting resolution

Was it resolved to your satisfaction?
○ Yes ○ No

How would you rate the person(s) who helped you?

	Poor		Good		Excellent
Courtesy	○	○	○	○	○
Knowledge	○	○	○	○	○
Follow-through	○	○	○	○	○

Based on the service and support you received, would you buy this brand of PC again?
○ Yes ○ No

On the whole, how satisfied are you with the service and support you received?
○ Not at all ○ ○ Satisfied ○ ○ Extremely satisfied

PLEASE FAX TO 415/357-4522. FOR BEST RESULTS, PHOTOCOPY THIS PAGE.

High Resolution
768 x 576 Pixel
images

RDC-2
multimedia digital camera

Stills with Sound

- **Dual Lens Design** utilizes a wide-angle 35mm and telephoto 55mm lens as well as Macro optics for close-up photography.
- **Automatic Features** like Auto Flash, Auto Focus and Auto Exposure makes picture taking effortless.
- **Exposure Compensation** adjustable to +/-5 EV stops in .3 increments gives you control over your images.
- **LCD Monitor** (optional) allows you to view your images before and after you shoot them.
- **Compact Design** makes the camera easy to hold yet small enough to fit in your shirt pocket.

Ricoh's RDC-2 advanced design features let you go beyond just taking still pictures. Now you can bring your images to life by capturing the movements and sounds of your subjects.

The RDC-2 lets you select between five independent recording modes to capture digital information in any combination or order you choose: Still Mode with macro capability, Sound Mode, Stills with Sound Mode, Continuous Mode, Document Mode.

The Ultimate Presentation Tool. The RDC-2 allows you to use your digital images in a multitude of ways...plug the RDC-2 into any TV monitor or VCR and playback your images and sounds instantly. Download text and graphics to the camera to customize and enhance your presentations.

Hear . . . . . what you see.

RDC-1 3X Zoom Digital Camera with Full Motion and Sound.

RDC-1
DIGITAL CAMERA

Macro Capability

- **High Resolution 768 x 576 images.**
- **Portable**: Easily fits in your briefcase, purse or pocket.
- **Output to Virtually All Digital Media**: Output to color PC or video printer, TV monitor, or send still images and sound around the world via modem/digital phone.
- **6 Different Data Recording Modes**: Still images, sound, still images with sound, continuous shooting, full motion video with sound, document mode, and macro capability.
- **Removable Media**: Stores everything on PCMCIA cards available in 2, 8, and 24 megabyte capacities.
- **Software Included**: Photo-editing and cataloging software is included for both Windows and Macintosh platforms.

Think of the Possibilities!
Document events, create entire presentations, send your images to the Internet within minutes. Communicate with co-workers in remote locations.

MULTIMEDIA WORLD ALL-STAR

BEST of AIM SHOW
IMAGING MAGAZINE

BEST OF BYTE COMDEX Fall '95

RICOH®

Visit us @ www.ricohcpg.com

Circle 204 on reader service card

RICOH CORPORATION • 475 Lillard Drive • Sparks, Nevada 89434 • Tel 702.352.1600 • Fax 702.352.1615

PC WORLD

TOP 10 PRINTERS

	MONOCHROME WORKGROUP PRINTERS	Month tested	Street price (9/3/96)	Overall rating	Speed for plain text (ppm)	Speed for full-page graphics (ppm)	Comments	Reader service number
1	Lexmark Optra Lx+ 800/891-0331 http://www.lexmark.com	July 96	$1950	89	10.7	1.4	**FEATURES:** 16-ppm laser. Standard 4MB of RAM, 600-by-600-dpi resolution (true 1200 dpi with at least 8MB of RAM), 500 sheets input and output. **PRO/CON:** Excellent print quality. Easy-to-read LCD labels on control panel. Somewhat slow, especially printing full-page graphics.	621
2	Lexmark Optra R+ 800/891-0331 http://www.lexmark.com	Nov 96	$1300	88	10.8	1.2	**FEATURES:** 16-ppm laser. Standard 4MB of RAM, 600-by-600-dpi resolution (true 1200 dpi with at least 8MB of RAM), 200 sheets input, 250 output. **PRO/CON:** Print quality, speed, and design resemble the Optra Lx+'s, but paper capacity is lower. Upgraded model costs $150 less than previous version.	622
3	IBM Network Printer 12 800/426-3333 http://www.ibm.com	NEW	$1250	88	8.7	2	**FEATURES:** 12-ppm laser. Standard 4MB OF RAM (tested with 2MB at press time), 600-by-600 dpi resolution, 250 sheets input, 270 output. **PRO/CON:** Lowest price on the chart; fast graphics printing; very good print quality. Support policies include a year's free on-site service. Manuals can be confusing.	–
4	HP LaserJet 5M 800/752-0900 http://www.hp.com	July 96	$1799	87	9.5	1.1	**FEATURES:** 12-ppm laser. Standard 6MB of RAM, 600-by-600-dpi resolution, 250 sheets input and output. **PRO/CON:** Very good print quality. Ethernet standard. Easy to use control panel. Maximum paper capacity is only 750 sheets; most printers on the monochrome chart exceed 1000 maximum.	623
5	Okidata OL1200/PS 800/654-3282 http://www.okidata.com	July 96	$1399	87	8.9	2.3	**FEATURES:** 12-ppm LED. Standard 6MB of RAM, 600-by-600-dpi resolution, 500 sheets input, 250 output. **PRO/CON:** Inexpensive. Good print quality and performance, but control panel not as intuitive as the Lexmarks' or HP's. On-site service is free for first year.	624
	COLOR WORKGROUP PRINTERS							
1	HP DeskJet 1600CM 800/752-0900 http://www.hp.com	July 96	$1999	89	4.4	0.5	**FEATURES:** 8-ppm monochrome/2-ppm color ink jet with 6MB of RAM, 600-by-600-dpi monochrome, 300-by-300-dpi color. **PRO/CON:** Inexpensive for good print quality and adequate speed; PostScript and ethernet are included. Ink jet pages, unlike a laser's, are sensitive to moisture and light.	625
2	Tektronix Phaser 350 800/835-6100 http://www.tek.com	NEW	$3495	88	3.4	0.9	**FEATURES:** 6-ppm solid ink printer. Standard 8MB of RAM, 300-by-300-dpi monochrome and color. **PRO/CON:** Stellar color print quality, fastest graphics speed on the color chart, solid ink blocks are easy to load, black ink is free for as long as you own printer. Slow printing text.	626
3	Xerox XPrint 4920 Plus 800/349-3769 http://www.xerox.com	Sept 96	$6500	86	5.5	0.3	**FEATURES:** 12-ppm monochrome/3-ppm color laser. Standard 16MB of RAM, 600-by-600-dpi monochrome and color. **PRO/CON:** Superb print quality; optional feeder/printer cabinet ($1341) gives it the highest maximum paper capacity (1750) of any color laser on the chart. Slow printing full-page graphics.	627
4	Tektronix Phaser 550 800/835-6100 http://www.tek.com	July 96	$5945	85	5.6	0.5	**FEATURES:** 14-ppm monochrome/5-ppm color laser with 8MB of RAM, 600-by-600-dpi monochrome and color (true 1200 dpi with RAM upgrade). **PRO/CON:** Least expensive color laser on the chart; versatile paper handling accommodates labels. Proprietary RAM is expensive.	628
5	HP Color LaserJet 5M 800/752-0900 http://www.hp.com	July 96	$7395	85	6.9	0.9	**FEATURES:** 10-ppm laser. Standard 24MB of RAM, 300-by-300-dpi monochrome and color. **PRO/CON:** Fastest color laser we've tested. Ethernet standard. Print quality is good for text and simple graphics, but not sophisticated continuous-tone images like photographs.	629

Best Buy http://www.pcworld.com/t10printers Windows 95-certified Plug and Play All products: 903

HOW WE TEST The overall rating for both monochrome and color workgroup printers is based on print quality (27 percent), price (20 percent), features and ease of use (20 percent), speed (15 percent), service and support (13 percent), and cost of consumables (5 percent). For all ratings, higher is better. Data based on tests designed and conducted by the PC World Test Center. All rights reserved.

IBM WASTED NO TIME after the company's five-year noncompete agreement with Lexmark expired. IBM's new Network Printer 12, debuting at third place on the monochrome chart, is hot on the heels of Lexmark's Optra Lx+ and Optra R+. On the color chart, the Tektronix Phaser 350 debuts in second place.

How did IBM do it? Low price and fast graphics speed. The Network Printer 12's $1250 street price is the lowest on the ▶

monochrome chart, and its 2-pages-per-minute graphics speed is one of the fastest. Its 8.7-ppm text speed is average for the monochrome lasers we've tested.

The IBM's print quality is also impressive. Its remarkably deep black toner draws sharp text and smooth gray-scale images. IBM's generous support policies include a year of free on-site service and free, round-the-clock technical support.

That said, the Network Printer 12 has some minor flaws. Its documentation is overly long—four volumes—and some of its illustrations are hard to follow. Its maximum input capacity of 750 sheets is low: Both of the Lexmarks exceed 1000 sheets. Finally, the pages we printed from the IBM tended to curl. This may have been caused by our lab's dry environment.

The Network Printer 12 we received was configured with 2MB of standard RAM, but just before IBM launched the printer, the standard was upgraded to 4MB. We'll retest the Network Printer 12 with 4MB of RAM in the March issue.

PHASER 350 WAXES BRILLIANT

WHAT'S BLACK AND white and free all over? Monochrome pages printed with the Tektronix Phaser 350, the first solid-ink printer we've tested for the Top 10. It debuts at number two on the color chart this month, coming close to unseating the Best Buy, HP's DeskJet 1600CM. The Phaser 350 rose this far because it occupies a fairly happy medium between an ink jet that's inexpensive but needs coated paper to print its best, and a color laser that's not as picky, but costs much more. The $3495 Tektronix is cheaper than most color lasers, and it prints its eye-popping colors on all kinds of paper. To help convince customers that it's okay to use a color printer for ordinary text documents, Tektronix will give away the black ink indefinitely—making its low cost per page even lower. But because the Phaser 350's text printing is slow and its paper handling limited, it's best for offices that print color output as much as or more than plain black.

The Phaser 350's solid ink technology melts chunky, crayonlike blocks of ink and sprays them onto paper, producing a somewhat shiny, waxlike finish and rich colors that make laser and ink jet pages pale in comparison. The Phaser 350's graphics speed is the fastest we've seen from a color printer, too, at nearly 1 ppm.

So what's not to like about the Phaser 350? Its 3.4-ppm text speed in our tests is the slowest on the chart. Text printing is less crisp than a laser's, especially with small type. The printer cannot take legal-size paper or envelopes, and you need a special tray for transparencies. The slightly raised ink printed by the Phaser 350 caused jams in our office copier's autofeeder. Finally, the printer's hot-wax smell could be annoying in an enclosed space.

THE NEW TEKTRONIX PHASER 350'S solid ink produces exceptional color prints and decent black text. Better yet, the Phaser 350's black ink is free indefinitely.

Three other color printers we tested this month did not make the chart: The $5999 Apple Color LaserWriter 12/660 PS and $3399 QMS magicolor WX lasers, and Epson's $389 Stylus Color Pro ink jet. The Stylus Color Pro is networkable and far cheaper than anything else on the chart, but it lacks the speed and paper capacity to compete. Street-priced at $5999, the new Apple Color LaserWriter 12/660 PS costs less than the Canon, IBM, and Lexmark printers we've tested that use the same engine, but it's not as fast.

A $3399 COLOR LASER FROM QMS

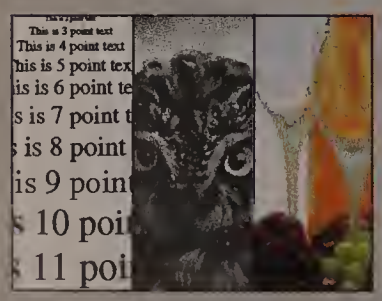
WITH ITS ROCK-BOTTOM $3399 street price—the lowest of any color laser we've tested—QMS's magicolor WX should have been a contender. Its monochrome output is good; color images look a little washed-out. The interior is easily accessible for replacing toner and parts. Its documentation is clearly illustrated. Unfortunately, the QMS is slow. It turned in respectable times for graphics pages, but was noticeably slower than other color lasers on plain text. This is in part because the magicolor WX is a Windows-only printer—which means no PostScript or Macintosh support, and it depends on your CPU for processing power.

—Dan Littman

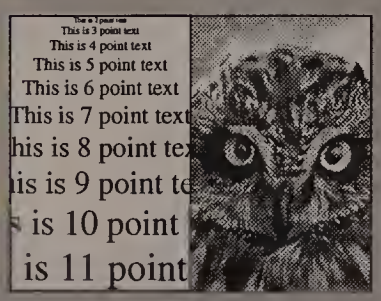
Dan Littman has covered printers for ten years. Testing performed by Dave Casini of the PC World Test Center. ■

PRINT QUALITY SAMPLES

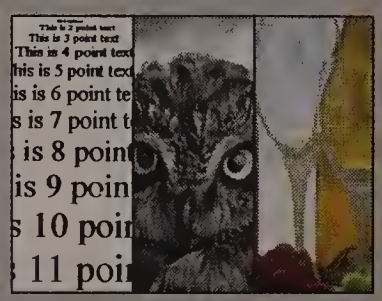
Tektronix Color and IBM Text Stand Out



TEKTRONIX PHASER 350
This solid-ink printer's deeply saturated colors pop from the page. Text quality is good, but finer lines and smaller fonts can look a little fuzzy.



IBM NETWORK PRINTER 12
This new monochrome laser from IBM prints very good text and gray-scale images—due in part to its unusually black toner.



QMS MAGICOLOR WX
This low-priced $3399 laser offers very good text print quality, but color graphics look a little washed out. Its slow print speeds kept it off the chart.

$50 mail-in Rebate
Limited time offer.

Not all 800 pound gorillas are what they're cracked up to be.

If you need a scanner that combines high performance and maximum value, may we suggest a little head-to-head competition. UMAX vs HP? Unfair comparison? Maybe for them. UMAX has a reputation for offering advanced, award-winning scanners at prices that make good business sense. Plus, our software bundles are unmatched, even by the big boys. So why monkey around? Compare the UMAX Vista S-12 with the HP ScanJet 4c and decide for yourself.

Compare	UMAX Vista S-12	HP ScanJet 4c
Image editor software	✔ Adobe Photoshop Full	Photopaint
Presentation software	✔ ASAP Word Power	None
Maximum DPI	✔ 9600	2400
Bit depth	✔ 33-bit[1]	30-bit
Scanning speed (5" x 7" color photo)	✔ 18 sec.	42 sec.
Lamp	✔ Cold cathode - lasts longer	Fluorescent
Tech support	✔ Toll free	No 800 number
Price	✔ $699[2]	$ 938[3]

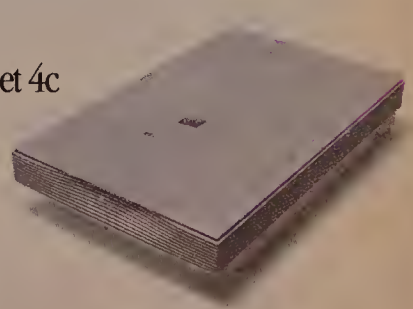
UMAX Vista S-12

UMAX

toll free **800-859-2728**

http://www.umax.com

HP ScanJet 4c



[1] 33-bit equivalent with the analog gamma correction. [2] Estimated street price after $50 mail-in rebate. [3] Average street price from sampled advertisements in Computer Shopper Sept. 1996.

© Copyright 1996 UMAX Technologies, Inc. HP and HP ScanJet 4c are registered trademarks of Hewlett Packard, Inc. Adobe Photoshop is a registered trademark of Adobe, Inc. ASAP Word Power is a registered trademark of Software Publishing Corp. All other trademarks are the property of their respective owners.

Circle 250 on reader service card

Two Names. One Ideal.

Michael Johnson.
Multiple Gold Medal Winner and
World Record Breaker.

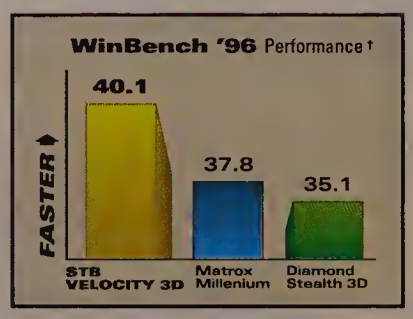
VELOCITY 3D™ by STB.
World's Fastest
3D Video
Accelerator.

DIGITAL VIDEO

VELOCITY 3D MULTIMEDIA ACCELERATOR

When it comes to video, only the best will do. The new VELOCITY 3D™ multimedia accelerator from STB has it all – from surfing the net and playing 3D games, to watching MPEG and other full-motion video formats at warp speed. ■ 4MB EDO VRAM and a 220MHz RAMDAC deliver world record performance (up to 8MB with add-on card). ■ With Plug-n-Play, Win95 and NT compatibility, bundled software, a lifetime warranty, and toll-free support you'll agree that the VELOCITY 3D is...

Simply the Best



S3 Incorporated

Available at: COMPUSA · BEST BUY · COMPUTER City · Incredible Universe · ComputAbility · Fry's · MICRO CENTER · ELEK-TEK, Inc.

STB Systems, Inc.
1-888-234-8750
www.stb.com

Copyright 1996 STB Systems, Inc. All rights reserved. All trade names referenced are the trademarks, service marks, or registered trademarks of their respective holders. For a copy of the terms of the limited lifetime warranty contact STB Systems at (214) 234-8750. †WinBench 96 1.0 conducted on a Gateway 2000 (model P5-166, w/Windows95) 166MHz Pentium, PCI 2.0 Bus, 512KB Pipeline cache, 16MB EDO DRAM, Caviar IDE HD, 1024x768 with 256 colors at 75Hz refresh. STB VELOCITY 3D™, Matrox Millennium, and Diamond Stealth 3D 2000 were tested using driver versions 1.23, 4.03.00.3110 and 4.02.12 respectively. Prices and specifications subject to change without notice.

Circle 210 on reader service card

PC WORLD

TOP 10 MONITORS

	17-INCH MONITORS	Month tested	Street price (9/1/96)	Overall rating	Quality of text/graphics	Comments	Reader service number
1	Iiyama Vision Master Pro 17 800/394-4335 http://www.iiyama.com	retested this month	$829	90	very good/ excellent	**FEATURES:** 15.9-inch viewable screen, .25mm Diamondtron tube, up to 85-Hz refresh rate [1], Level 2b Plug and Play ready [2], three-year warranty, 12-hour weekday toll-free support. **PRO/CON:** Best graphics detail, superb text clarity, easy-to-adjust on-screen menus, large screen size; two faint lines visible across screen.	611
2	Panasonic PanaSync S17 201/348-7000 http://www.panasonic.com	Sept 96	$699	84	very good/ very good	**FEATURES:** 15.7-inch viewable screen, .27mm dot pitch tube, up to 85-Hz refresh rate rate [1], Level 2b PnP ready [2], three-year warranty, 24- hour daily toll-free support. **PRO/CON:** Low price, accurate text and graphics; on-screen menu icons are difficult to decipher, must press control buttons too much to find on-screen menu items.	612
3	Continental DigiView 1709D 818/854-8288 http://www.digiview.com	Sept 96	$799	83	very good/ very good	**FEATURES:** 15.9-inch viewable screen, .25mm Diamondtron tube, up to 101-Hz refresh [1], Level 2b PnP ready [2], three-year warranty, 8-hour toll-free workday support. **PRO/CON:** Good price, text and pictures are very crisp, main control button looks odd but adjusting screen is easy; rear on/off switch is hard to reach.	613
4	Princeton Graphic Systems Ultra 17+ 800/747-6249 http://www.prgr.com	Sept 96	$635	83	good/ very good	**FEATURES:** 15.8-inch viewable screen, .28mm dot pitch tube, up to 85-Hz refresh rate [1], Level 2b PnP ready [2], three-year warranty, 24-hour daily toll-free technical support (automated after 5 p.m.). **PRO/CON:** Lowest price on the chart, graphics look very detailed, sharp text; some on-screen menu icons are difficult to decipher.	614
5	Packard Bell 3020 800/733-5858 http://www.packardbell.com	Sept 96	$660	82	very good/ very good	**FEATURES:** 15.7-inch viewable screen, .28mm dot pitch tube, up to 75-Hz refresh rate [1], Level 2b PnP ready [2], 24-hour daily toll-free support. **PRO/CON:** Low price, very good type and image detail, awkward four-button control panel, lacks reset and image tilt controls, only a one-year warranty if not purchased with a PC.	615
6	IBM P70 800/426-7255 http://www.pc.ibm.com	Sept 96	$1069	82	very good/ very good	**FEATURES:** 15.9-inch viewable screen, .25mm Trinitron tube, up to 85-Hz refresh rate [1], Level 2b PnP ready [2], three-year warranty, 24-hour daily toll-free support. **PRO/CON:** Sharp text and graphics, easy-to-use on-screen menus, large actual screen size; highest price on chart, two faint lines visible across screen.	–
7	ViewSonic PT770 909/869-7976 http://www.viewsonic.com	Sept 96	$849	81	very good/ good	**FEATURES:** 15.9-inch viewable screen, .25mm Diamondtron tube, up to 101-Hz refresh rate [1], Level 2b PnP ready [2], three-year warranty, 11-hour workday support. **PRO/CON:** $50 price drop, text is very sharp, vivid graphics, large actual screen size, easy to adjust, color correction software; two faint lines visible across screen.	616
8	Dell UltraScan D1726T-HS 800/289-3355 http://www.dell.com	Sept 96	$739	81	good/ good	**FEATURES:** 15.7-inch viewable screen, .25mm Trinitron tube, up to 105-Hz refresh rate [1], Level 2b PnP ready [2], three-year warranty, 24-hour daily toll-free support. **PRO/CON:** $60 price cut, crisp text and graphics, easy controls (press a button, and the appropriate adjust gauge appears); two faint lines visible across screen.	617
9	Samsung SyncMaster 17GLsi 818/365-8131 http://www.sosimple.com	Sept 96	$910	80	very good/ satisfactory	**FEATURES:** 15.8-inch viewable screen, .26mm dot pitch tube, up to 105-Hz refresh [1], Level 2b PnP ready [2], three year warranty, 24-hour daily toll-free support. **PRO/CON:** Very crisp text, easy-to-use button controls, extensive on-screen menus, high refresh rate; ho-hum graphics, expensive.	618
10	Wyse Technologies WY-17PS 800/438-9973 http://www.wyse.com	Sept 96	$799	80	good/ very good	**FEATURES:** 15.9-inch viewable screen, .25mm Diamondtron tube, up to 101-Hz refresh rate [1], Level 2b PnP ready [2], three-year warranty, toll-free support 9 hours on weekdays. **PRO/CON:** Detailed text and images, same controls as Continental; expensive, rear on/off switch, two faint lines visible across screen.	619

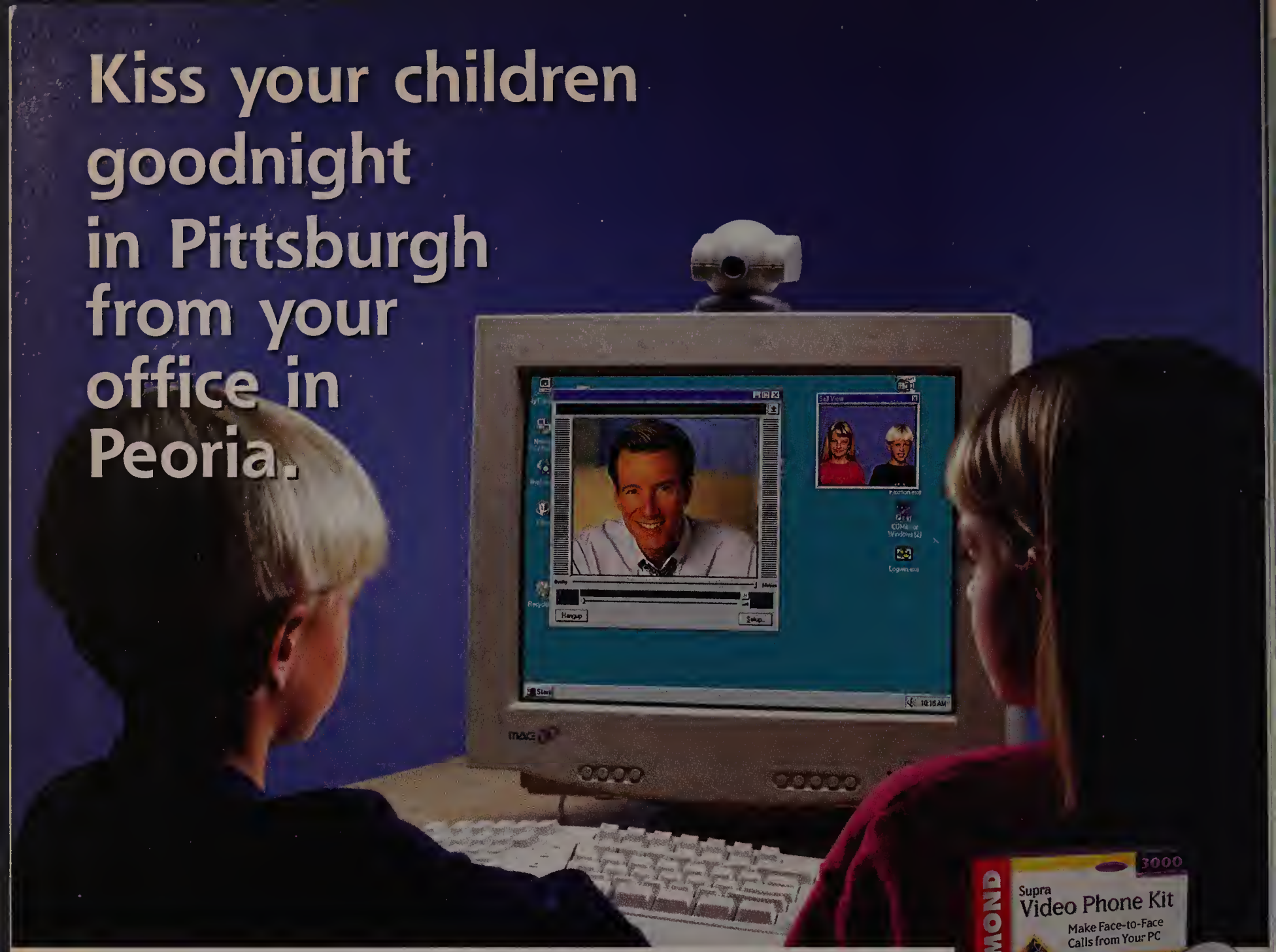
Best Buy http://www.pcworld.com/t10monitors All products: 902

[1] Highest refresh rate at 1024 by 768 resolution. [2] Level 2b Plug and Play monitors and graphics cards can communicate bidirectionally. However, Windows 95 does not fully utilize monitor Plug and Play.

HOW WE TEST Ten judges rate a monitor's text and graphics quality. We evaluate each unit on how well it displays typical business letters, spreadsheets, Web pages, and scanned images. The overall rating is based on price (30 percent), features and ease of use (25 percent), text and graphics quality (20 percent each), and service and support (5 percent). The best possible overall rating is 100. Data based on tests designed and conducted by the PC World Test Center. All rights reserved.

TWO 17-INCH MONITORS that vendors mistakenly said were dropped are back on the Top 10. The $829 Iiyama Vision Master Pro 17 regains our top Best Buy with near-perfect image and text detail. In fourth is the $635 Princeton Graphic Ultra 17+. Graphics are crisp and the price is great. IBM's $170 price misquote sinks its P70 to sixth. We also tested Compaq's P70 and Princeton's EO 17 and EO 70 units, but display quality was so-so. ■

Kiss your children goodnight in Pittsburgh from your office in Peoria.



Introducing the Supra Video Phone™ Kit 3000—the first affordable video conferencing solution.

The Supra Video Phone Kit 3000 from Diamond puts you face-to-face with friends, family and business associates—whether you're using a regular phone line or the Internet. This exciting new video phone solution has everything you need including: **the SupraExpress™ 336 modem** which incorporates Rockwell's new modem technology, the **Diamond Crunch It™ 1001 video capture card** and a full-featured **color video camera** with built-in microphone. Plus, the Supra Video Phone Kit 3000 supports H.324 for seamless compatibility with other standard video phones. And it's fast—up to 15 frames per second. All you need is a 100Mhz Pentium® processor, a sound card and a phone line. Best of all, our video phone solution is available for under $400, making it the easiest and most affordable way to see eye-to-eye with the people who matter most.

Included in package	Supra Video Phone Kit™ 3000	Competitor "B"**	Competitor "C"**
Internet Dialing	yes	no	no
Point-to-Point Dialing	yes	yes*	yes
Video Capture Card	yes	yes	yes
Modem	yes	no	yes
Video Camera	yes	no	yes
Price	$399	$399	$999

*Requires V.80 modem. **Information gathered from Company's websites.

CONNECT with Rockwell

DIAMOND MULTIMEDIA COMMUNICATIONS DIVISION

PRODUCTS INCORPORATE TECHNOLOGY PROVIDED BY ROCKWELL INTERNATIONAL CORPORATION.

For more information, visit our website at **http://www.diamondmm.com/mpw**
24-Hour Fax-Back: 541-967-0072 ◆ Phone: 1-800-727-8667

SupraExpress™ Diamond Crunch It™ 1001 and Supra Video Phone™ Kit 3000 are trademarks of Diamond Multimedia Systems, Inc./Communications Division, 312 SE Stonemill Drive, Suite 150, Vancouver, WA 98684. Rockwell and Associated Logo are trademarks of Rockwell International Corporation. All other trademarks are the property of their respective owners.

Circle 79 on reader service card

PC WORLD

TOP 10 GRAPHICS BOARDS

	GRAPHICS BOARD	Month tested	Street price (10/10/96)	Overall rating	PC WorldBench graphics score	Comments	Reader service number
1	ATI 3D Xpression+ PC2TV 905/882-2600 http://www.atitech.ca	NEW	$199	99	180 very good	**FEATURES:** 4MB of SDRAM, 150-Hz refresh rate at 1024 by 768, 3-D acceleration, bilinear video interpolation, ATI MPEG player, ATI Rage II chip. **PRO/CON:** 4MB of memory lets you see more colors at high resolutions, connects to a TV, excellent AVI and MPEG video, flawless installation; 3-D quality is merely okay.	744
2	Matrox Mystique 800/361-1408 http://www.matrox.com/mga	Dec 96	$179	98	181 very good	**FEATURES:** 2MB of SGRAM, 130-Hz refresh rate at 1024 by 768, 3-D acceleration, optional MPEG and TV tuner cards, Compcore MPEG software, DirectVideo, Direct3D, MGA-1064SG chip. **PRO/CON:** Best 3-D performance and quality, good AVI and MPEG video playback; refresh rates hard to set.	745
3	STB Lightspeed 128 888/234-8750 http://www.stb.com	Aug 96	$179	97	186 very good	**FEATURES:** 2.25MB of MDRAM, 120-Hz refresh rate at 1024 by 768, bilinear video interpolation, DirectVideo, Xing MPEG software, Tseng Labs ET6000 chip. **PRO/CON:** Great bang for your buck, performs well in business and graphics programs, perfect AVI video playback, excellent MPEG, lifetime warranty; no 3-D acceleration.	746
4	VideoLogic GrafixStar 600 800/578-5644 http://www.videologic.com	Oct 96	$159	96	185 very good	**FEATURES:** 2MB of MDRAM, 120-Hz refresh rate at 1024 by 768, bundled multimedia apps, Xing MPEG software, DirectVideo, Tseng Labs ET6000 chip. **PRO/CON:** Fast in business and graphics programs, inexpensive, excellent utilities, top-notch AVI and MPEG video; no 3-D acceleration.	747
5	Hercules Terminator 3D 800/532-0600 http://www.hercules.com	Dec 96	$189	96	184 very good	**FEATURES:** 2MB of EDO DRAM, 90-Hz refresh rate at 1024 by 768, 3-D acceleration, optional MPEG card, Xing MPEG software, S3 Virge chip. **PRO/CON:** Fast in Windows business applications, handles basic 3-D graphics well, excellent AVI and MPEG video playback, easy installation, toll-free support; poor documentation.	748
6	Matrox Millennium 800/361-1408 http://www.matrox.com/mga	June 96	$199	95	184 very good	**FEATURES:** 2MB of WRAM, 120-Hz refresh rate at 1024 by 768; optional MPEG and TV tuner cards, Compcore MPEG software, DirectVideo, MGA-2064W chip. **PRO/CON:** Fast, some 3-D acceleration, superb AVI video; watch for slower refresh rates in version shipped with some PCs.	749
7	Diamond Stealth 3D 2000XL 800/468-5846 http://www.diamondmm.com	Sept 96	$169	95	183 very good	**FEATURES:** 2MB of EDO DRAM, 100-Hz refresh rate at 1024 by 768; 3-D acceleration, bundled games, Mediamatics MPEG software, DirectVideo, S3 Virge chip. **PRO/CON:** Diamond's InControl Tools make changing video settings easy, excellent MPEG playback, flawless installation; tech support can be hard to reach.	750
8	Hercules Dynamite 128/Video 800/532-0600 http://www.hercules.com	Nov 96	$179	93	185 very good	**FEATURES:** 2MB of MDRAM, 90-Hz refresh rate at 1024 by 768, bilinear video interpolation, Xing MPEG software, DirectVideo, Tseng Labs ET6000 chip. **PRO/CON:** Handles business and graphics programs equally well, nice utilities, excellent AVI video playback, toll-free support; weak documentation, no 3-D acceleration.	751
9	Orchid Fahrenheit Video 3D 800/577-0977 http://www.orchid.com	Dec 96	$199	93	187 very good	**FEATURES:** 2MB of EDO DRAM, 110-Hz refresh rate at 1024 by 768, 3-D acceleration, optional MPEG and TV tuner cards, Xing MPEG software; S3 Virge chip. **PRO/CON:** Easy to install and use, good software and manual, fastest board by a hair; not so good with AVI video playback, poor MPEG quality.	752
10	Jazz G-Force 128 888/367-5200 http://www.jazzmm.com	NEW	$169	93	186 very good	**FEATURES:** 2MB of MDRAM, 120-Hz refresh rate at 1024 by 768, bilinear video interpolation; Mediamatics MPEG player, Tseng Labs ET6000 chip. **PRO/CON:** Inexpensive, but powerful enough to handle graphics-intensive programs, excellent AVI and MPEG video; lacks some utilities, no 3-D acceleration.	753

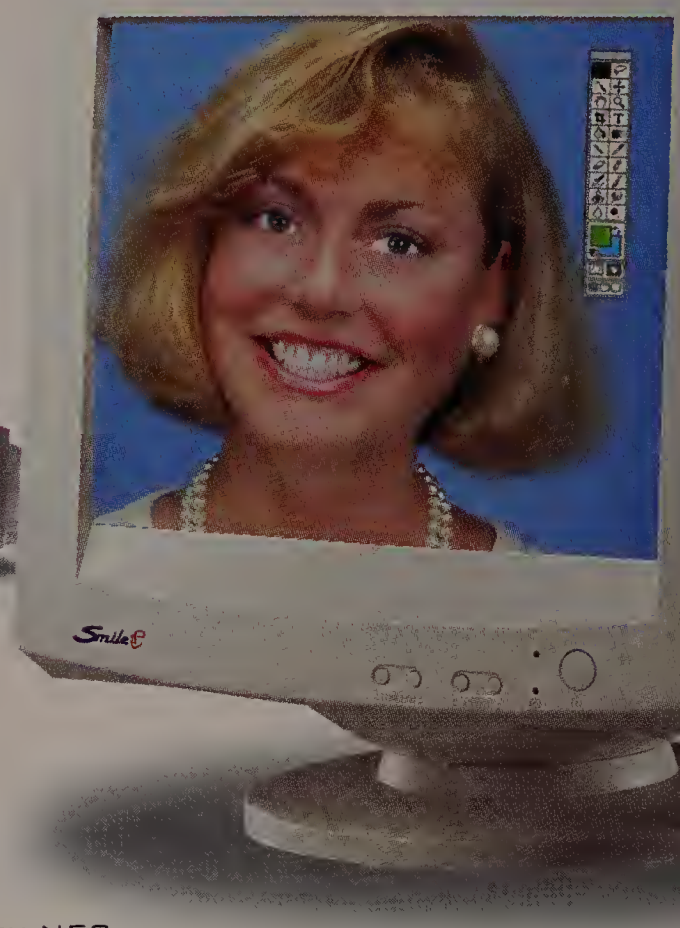
Best Buy http://www.pcworld.com/t10graphics Windows 95-certified Plug and Play All products: 912

HOW WE TEST We tested PCI boards under Windows 95 with PC WorldBench 1.0 at 800 by 600 resolution and 16.8 million colors (reported here) and at 1024 by 768 and 65,536 colors. Boards were tested in a Dell Dimension XPS P133c with 16MB of EDO DRAM and 256K of pipeline-burst secondary cache. Overall rating is based on performance (40 percent), features (30 percent), price (20 percent), and support policies (10 percent). For all ratings, higher is better. Data based on tests designed and conducted by the PC World Test Center. All rights reserved.

YOU HAVE A BIG NEW MONITOR right under your nose and you probably don't know it. With ATI's new $199 3D Xpression+ PC2TV, you can use your television set as a monitor. The board also carries a lot of memory for the price. At the other end of the chart, the Jazz G-Force 128 debuts at number ten. It has impressive performance and excellent video playback, but its utilities aren't as comprehensive as other boards'. ■

IMPROVE YOUR IMAGE

WITH A CROMACLEAR™ SMILE



Your Full Line Monitor Source from 9" to 21"

THIS SOPHISTICATED LEADING EDGE CROMACLEAR™ CRT TECHNOLOGY, BY NEC, PRODUCES ASTONISHING COLOR SATURATION AND CLARITY, SHARPLY DEFINED TEXT AND GRAPHICS, AND A 3D LIKE DEPTH.

THE PATENTED CROMACLEAR™ CRT INCORPORATES THE BEST ATTRIBUTES OF THE "APERTURE GRILL" (CLEAR GRAPHICS) AND THE "DOT MATRIX" (CLEAR TEXT) CRT MASKING TECHNOLOGIES INTO THE RADICALLY NEW 0.25 MM STRIPE PITCH MASKING TECHNOLOGY CALLED CROMACLEAR™...CLEARLY THE INDUSTRY LEADER. SMILE'S PRICE PERFORMANCE "REV 5 SERIES" INCLUDES 15" AND 17" MONITORS SPECIFICALLY DESIGNED TO FULFILL THE NEEDS OF THE SOPHISTICATED POWER USER FROM CAD/CAM/CAE TO PROFESSIONAL DESKTOP PUBLISHING AND GRAPHIC DESIGN. SIMPLY PUT, YOU'LL ENJOY THE BRIGHTEST, SHARPEST, CLEAREST IMAGES IN THE INDUSTRY ...JUST WHAT YOU'VE COME TO EXPECT FROM OUR...

CROMACLEAR TECHNOLOGY

Picture Perfect Smiles.

Smile International, Inc.™

To receive further information about our total line of monitors, call toll free 1(800) 876-4532 or NJ 1 (201) 772-3661 or E-mail...SMILEKFC@AOL.com

SMILE USA California and New Jersey • SMILE Worldwide Germany, France, Benelux, UK, Pacific Rim

Smile is the U.S. subsidiary and a registered trademark of Kuo Feng Corporation...A worldwide ISO-9002 certified leader in manufacturing of reliable, price-performance monitors. (All other products named in this ad are trademarks or registered trademarks and are the property of their respective companies. CromaClear is a registered trademark of NEC.)

Circle 206 on reader service card

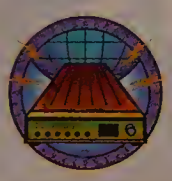
PC WORLD

TOP 10 MODEMS

	EXTERNAL MODEMS	Month tested	Street price (10/10/96)	Overall rating	Average transfer time per MB (min:sec)	Comments	Reader service number
1	U.S. Robotics Courier V.Everything 33.6 800/877-2677 http://www.usr.com	NEW	$275	82	2:42	**FEATURES:** 33.6-kbps, FlashROM, distinctive ring, Quicklink II fax/data software, password protection, callback. **PRO/CON:** Above-average performer, loaded with features, manual volume control, phone jack turns off during connect, great documentation; expensive, takes up a lot of room on your desk.	788
2	Hayes Optima 28.8 Business Modem Voice/Data/Fax 770/840-9200 http://www.hayes.com	retested this month	$259	79	2:31	**FEATURES:** 28.8-kbps, FlashROM, 230.4-kbps modem-to-PC speed, stores multiple profiles, SmartCOM Message Center LE voice/fax/data software. **PRO/CON:** Second fastest performer on the chart, toll-free tech support, Hayes will cross-ship replacement modem; trouble with graphics files, sparse manuals.	789
3	Motorola ISG Premier 33.6 800/566-3266 http://www.mot.com/mims/isg/	NEW	$300	78	2:28	**FEATURES:** 33.6-kbps, FlashROM, 230.4-kbps modem-to-PC speed, distinctive ring, stores 20 profiles, password protection, Quicklink II fax/data software. **PRO/CON:** Best performer on the chart, connected at 28.8 kbps or faster more than any other modem we tested, toll-free tech support; expensive.	790
4	U.S. Robotics Sportster 33.6 Data/Fax Modem 800/342-5877 http://www.usr.com	retested this month	$159	78	2:41	**FEATURES:** 33.6-kbps, phone jack turns off during connect, Quicklink II fax/data software. **PRO/CON:** Above-average performer, manual volume control, attractively priced, nice documentation, five-year warranty; comes with very few features—no security features, no storing multiple profiles.	791
5	Diamond Multimedia SupraSonic 336+ Voice Faxmodem 800/727-8772 http://www.diamondmm.com	NEW	$249	78	2:44	**FEATURES:** 33.6-kbps, FlashROM, MNP-10 cellular protocol, voice mail enabled, stores multiple profiles, distinctive ring. **PRO/CON:** Slowest performer on the chart, but average for all modems tested, comes with serial cable and a headset telephone, LCD English-language status display; no security features.	792
	PC CARD MODEMS						
1	Megahertz XJ4288 800/527-8677 http://www.megahertz.com	retested this month	$269	87	2:38	**FEATURES:** 28.8-kbps, MNP-10EC error control, FlashROM, built-in phone jack, 230.4-kbps modem-to-PC speed, digital line voltage protection. **PRO/CON:** Best performer, feature rich, thorough and easy-to-read documentation, even technophobes can install it, five-year warranty; most expensive unit on the chart.	793
2	Practical Peripherals ProClass 288 V.34 Data/Fax Modem with EZ-Port 770/840-9966 http://www.practinet.com	NEW	$229	85	2:42	**FEATURES:** 33.6-kbps, FlashROM, 230.4-kbps modem-to-PC speed, distinctive ring, stores multiple profiles, password protection, callback security, Quicklink II fax/data software. **PRO/CON:** Second fastest modem on the chart, built-in phone jack, lifetime warranty; installation was not as easy as we'd like.	794
3	TDK CyberExpress 3000 800/999-4835 http://www.tdksystems.com	NEW	$199	84	2:49	**FEATURES:** 33.6-kbps, MNP-10EC error control, distinctive ring, stores multiple profiles, 230.4-kbps modem-to-PC speed, Quicklink II fax/data software. **PRO/CON:** Nice price, toll-free tech support, digital line voltage protection with alert; slowest performer on chart and below average overall.	795
4	Zoom PCMCIA V.34C Plus Model 2870 800/631-3116 http://www.zoomtel.com	NEW	$199	84	2:47	**FEATURES:** 33.6-kbps, MNP-10EC error control, FlashROM, distinctive ring, stores multiple profiles, Win/DOS Fax Lite fax/data software. **PRO/CON:** Attractively priced, digital line voltage protection, seven-year warranty; no security features, middling performer, installation not recommended for novices.	796
5	U.S. Robotics Sportster PC Card Faxmodem with DataView Connector 800/527-8677 http://www.megahertz.com	NEW	$229	82	2:42	**FEATURES:** 28.8-kbps, includes a dongle—the DataView Connector—which shows power, send, receive, and online via an LED display, Quicklink II fax/data software. **PRO/CON:** Second fastest modem on the chart; not upgradable, no security features, sparse documentation, anemic overall features set.	797

Best Buy http://www.pcworld.com/t10modems Windows 95-certified Plug and Play All products: 914

HOW WE TEST We tested a pair of identical modems on a simulated phone network. For the phone line test, we sent a text file over 55 line conditions. For the file type test, we sent five files—graphics, text, program, and compressed file types, plus a mixture of these four types—over one line condition. We then averaged the results of the two tests. Overall rating is based on performance (43 percent), features (26 percent), price (12 percent), support (10 percent), and ease of use (9 percent). Data based on tests designed and conducted by the PC World Test Center. All rights reserved.



NEW TESTS BASED on Windows 95 and an influx of new 33.6-kbps modems changed this month's modem chart almost completely. Our new number one external unit, the Courier V.Everything 33.6, is one of four modems on the chart that are updates of 28.8-kbps models. As we've found before, these new 33.6-kbps versions don't offer much performance gain. Our top PC Card: the 28.8-kbps Megahertz XJ4288, first tested in October. ■

Life IS FULL OF choices

SO WHY **limit** YOURSELF TO JUST ONE FLAVOR OF **operating system?**

NOW YOU CAN **safely** RUN **multiple operating systems** WITH **PartitionMagic® 3.0!**

Admit it, you'd like to nibble at the latest flavors of Windows 95 or Windows NT without giving up the comfort of your current operating system. PartitionMagic makes it safe and easy by allowing you to install operating systems into their own physically separate partitions. And once you've installed a second or third operating system, PartitionMagic makes it easy to switch between them using Boot Manager. So nibble away—and still play it safe, with PartitionMagic! For more information, visit our Web site at **www.partition.com.**

Buy PartitionMagic 3.0 before March 31 and get $15 back from PowerQuest®. Visit your local software reseller or call 1-800-720-0399 for details.

"It's amazing that the computer industry managed so long without PartitionMagic."
Esther Schindler, *PC Magazine*

"Unique, dazzling, and indispensable, PartitionMagic is a must-have program in an era of larger and larger hard disks."
Edward Mendelson, *PC Magazine*

BUY NOW $15 CASH BACK

Babbage's • Best Buy • CompUSA • Computer City • Egghead
Electronics Boutique • Fry's • J&R • Micro Center • Office Depot • Software Etc.

© 1996 PowerQuest Corporation. All rights reserved. PowerQuest [illegible]
All other marks are property of their [illegible]

Circle 196 on reader service card

PC WORLD @HOME

Spielberg Goes Digital, Dinosaurs Return

THERE GOES THE NEVERHOOD

CONSIDERABLE POPULAR anticipation and industry attention have been focused on DreamWorks Interactive, the multimedia arm of Steven Spielberg's new movie studio. Good news: **The Neverhood** delivers on the much-hyped company's big promises. The visuals alone are worth the price of admission. The environment and characters in this game for adults are made from three tons of clay, creating a stunning blend of puppetry, stop-motion animation, and technology that enhances the gaming experience (the game's video sequences are a bit sluggish, though). Your goal is to guide the hero, Klaymen, through some 60 puzzles in order to save the Neverhood from the evil Klogg, who has wrested control of the hood from the good-hearted Hoborg. Along the way, you battle monsters and robots with serious attitude. And watch out for those hungry Venus's-flytraps. —*Angela Freeman*

WORKS LIKE A DREAM: Claymation, stop-motion video, and amazing sets star in DreamWorks' The Neverhood.

The Neverhood

GRADE: **B+**; PRICE: $54.95 list; DreamWorks Interactive; 800/426-9400, http://www.dreamworksgames.com

READER SERVICE NO. 708

PRINTS CHARMING

GREETING CARDS, banners, posters—this is the stuff home PCs and color printers are made for. And now with the latest versions of Mindscape's **PrintMaster Gold** and Broderbund's **PrintShop Ensemble**, you'll find that you can practically turn your home into a corner Kinko's.

With its loose-leaf–style interface, Mindscape's PrintMaster Gold 3.0 is a breeze to use. Just click on a tab to start a printing project (card, poster, or the like), and then flip through the templates or build your own from scratch. The selection of graphics should satisfy even serious clip-art hounds. You can also download additional fonts and graphics free from Mindscape's Web page.

PrintShop, the grandparent of all home publishing software, is still the leader in flexibility and design options. Like PrintMaster Gold, PrintShop Ensemble III includes more than 1000 ready-made designs for just about any project. You can even generate related invitations, banners, and name tags.

If you want maximum creative options, PrintShop Ensemble III is the choice. If you're willing to sacrifice a little flexibility and variety for greater ease of use, it's PrintMaster all the way. —*Roberta Furger*

PrintMaster Gold 3.0

GRADE: **A-**. PRICE: $40 list; Mindscape; 800/234-3088, http://www.mindscape.com

READER SERVICE NO. 709

PrintShop Ensemble III

GRADE: **A-**; PRICE: $50 street; Broderbund Software; 800/521-6263, http://www.broderbund.com

READER SERVICE NO. 710

RADIO ACTIVE PCs

YOU'D BE CRAZY to spend $80 just to hear radio on your PC. But if you'd like to record shows, program the radio to switch to your favorite AM or FM stations at particular times, or display the artist's name and song title, then **Cadet** just might be playing your song. You can also tap into a free data service that transmits sports, weather, and financial news directly to your system via the Computer Radio Network. But you can't tune in to just any station; it must be affiliated with CRN. Installing this 8-bit ISA card is cumbersome. A PC Card version is in the works, however. Stay tuned.

—James Oliver Cury

Cadet

GRADE: **C+**; PRICE: $79 list; ADS Technologies; 800/888-5244, 310/926-1928; http://www.ads-mm.com

READER SERVICE NO. 711

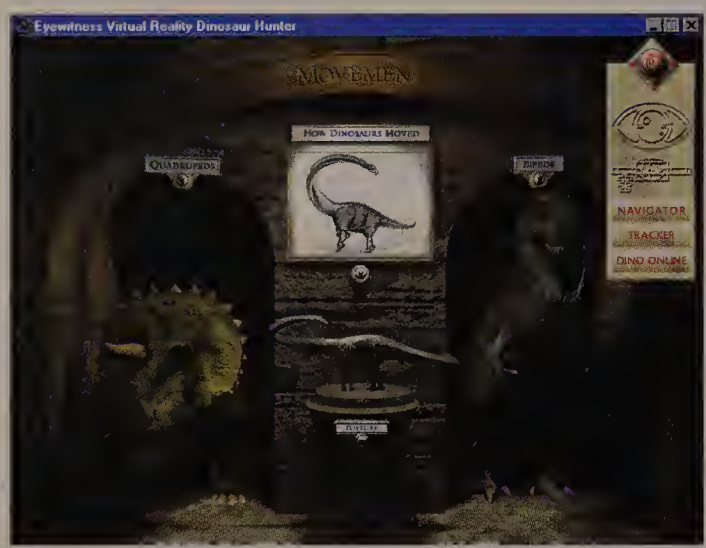
TUNE IN, TURN ON: The Cadet brings AM and FM to your PC, as well as a free news service.

EDITED BY James A. Martin

PHOTOGRAPH: ROBERT CARDIN

DINO-MITE

DK MULTIMEDIA'S **Eyewitness Virtual Reality Dinosaur Hunter** is no simple jaunt through the tar pits. To get the scoop on your favorite four-legged stars from *Jurassic Park*, you must begin in the middle of a vast museum, clicking in and out of tunnels, exhibits, and hallways. Along the way, you stumble upon endless rooms, maps, skeletons, sounds, and videos, presented via timelines, index searches, games, and World Wide Web links. No details are omitted; icons pop up all over the place, offering pronunciations of dinosaur names; 3-D animations; magnifying glasses; video clips of historic excavations; and much more.



DINOS SOAR: DK's Virtual Reality Dinosaur Hunter is a 3-D exploration of all things big, scaly, and extinct.

As with the other titles in DK Multimedia's Virtual Reality series, the sheer volume of information can be overwhelming at times. Still, you'll marvel at the inventive way it's all presented.

—James Oliver Cury

Eyewitness Virtual Reality Dinosaur Hunter

GRADE: **A-**; PRICE: $30 street; DK Multimedia; 800/356-6575, 212/213-4800; http://www.dk.com

READER SERVICE NO. 712

F Y I

IN 1996, 37 percent of all online users were women; that translates into 13.9 million women online. And by the year 2000, women will represent nearly 47 percent of online surfers, or 43.3 million.

SOURCE: JUPITER COMMUNICATIONS/WOMEN'S WIRE SURVEY

COLLEGE DAZE

BEFORE YOU HEAD OFF to your future alma mater (and spend all that *e pluribus unum*), check out Princeton Review's **College Advisor '97 Edition** and **Inside the SAT and ACT '97 Edition**. College Advisor features the latest data on more than 1200 schools. Type in your GPA, test scores, and curriculum requirements, and you get a list of appropriate colleges, with links to their Web sites. A new Financial Aid advisor and Automatic Competitiveness rating help you find the most affordable schools.

Before you can become an Ivy Leaguer, though, there are those dreaded tests; would-be Yalies should find Princeton's Inside the SAT test guide enormously valuable. An animated interface reduces the intimidation factor; and the videos, cartoons, and interactive elements almost make test taking fun. *Almost.*

—Glenn McDonald

College Advisor '97 Edition

GRADE: **B**; PRICE: $20 street

Inside the SAT and ACT '97 Edition

GRADE: **A**; PRICE: $30 street

Princeton Review; 800/566-7737, http://www.review.com

READER SERVICE NO. 713

RENT CHECK

RUNNING OUT OF IDEAS about what to rent at the video store? Check out Corel's **All-Movie Guide 2**, covering some 100,000 films. Like Microsoft's Cinemania, Corel's CD lets you search for films by year, category, genre, even mood. The new version adds coverage of about 100 recent releases and includes free Internet updates, Web site links, and a fresh batch of movie stills. Although easy to navigate, the video store interface is unappealing and lacks Cinemania's polish. Nonetheless, Corel All-Movie Guide 2 will help you come up with lots of new rental choices. Of course, finding a store that has what you're looking for is another matter. *—Aoife McEvoy*

All-Movie Guide 2

GRADE: **B-**; PRICE: $25.95 list; Corel; 800/455-3169, http://www.corel.com

READER SERVICE NO. 714 ■

KEEPING UP

Crackdown in Cyberspace

AN ILLINOIS COMPANY that sold RAM over the Internet has agreed to pay $5500 in consumer redress after falling to ship in a timely manner—and sometimes not shipping at all. According to a complaint filed by the Federal Trade Commission, US Telemedia required payment in cashier's checks, leaving customers little recourse when their orders never arrived. The company is one of the first Web advertisers to be charged with violating the Federal Mail and Telephone Order Rule, which establishes guidelines for when products ordered online or via phone or mail must be shipped. The FTC reports that US Telemedia is no longer in business. Remember: Always pay with a credit card. If you think you've been scammed, contact the FTC (http://www.ftc.gov).

Disinformation, Please

LOOKING FOR alternative sources of information on the World Wide Web? Check out **Disinformation** (http://www.disinfo.com), a site that's sure to scare the wits out of every conspiracy theorist with an Internet account. There are links to everything from publications like Apocalypse Now (http://bbs.annex.com/relayer/an2.htm) to reports on the CIA crack connection and the impact of McDonald's business practices on the environment.

Tightwads Unite!

WHO SAYS YOU CAN'T get something for nothing? **Free...On the Web** (http://www.netutopia.com/freebies/index.html) has links to dozens of Web sites where you'll find such goodies as free telephone time, T-shirts, and Tupperware. You generally have to provide your name and address, which means that you'll probably end up with a mailbox full of flyers. But you could also get some free Jelly Bellies, Kona coffee, Post-it Notes, shaving cream, and more.

—Roberta Furger

ILLUSTRATIONS: J.D. KING

With TurboTax, *every* tax form is an EZ.

This tax season, put America's #1-selling tax preparation software to work for you! TurboTax® makes completing your federal income tax return as easy as 1, 2, 3!

STEP 1: Answer TurboTax's easy-to-understand interview questions.

STEP 2: Let TurboTax review your return for money-saving opportunities and items that could trigger an IRS audit.

STEP 3: Print ready-to-file forms on plain white paper from almost any printer. It's simple!

Enjoy the benefits of professional tax help without the expense.

Our built-in *Tax Advisor* points out omissions on the fly … and offers helpful hints and suggestions to improve your tax situation. Plus, the *Final Review* checks for errors and overlooked deductions to save you money.

TurboTax's award-winning interface makes preparing your taxes a breeze!

It's easy to get *even more* money-saving tax advice … with TurboTax Deluxe on CD-ROM.

TurboTax Deluxe combines the power of TurboTax with multimedia tax advice:

- **A complete tax library.** Use integrated on-screen references—including over 30 IRS publications, *How To Pay Zero Taxes* and *Money® Magazine's Income Tax Handbook*—to find tax savings.
- **Video tax help.** View on-screen explanations and tax advice from financial experts Marshall Loeb and Mary Sprouse.
- **Tax Planner.** Plan ahead for next year's taxes … create "what-if" scenarios and choose the strategy that's best for you.

Call to order your copy of TurboTax or TurboTax Deluxe today … and see for yourself why TurboTax is America's #1 tax preparation software!

FREE Bonus Gift!

TripMaker 1996 by RAND McNALLY

The 1996 Edition of TripMaker™ by Rand McNally is the all-in-one solution for planning road trips in the U.S., Canada, and Mexico. It not only gets you from here to there, it also plans entire trips—choose from 88 pre-planned scenic tours! (CD-ROM only.)

TurboTax won every major tax software award in 1996!

March 1996

February 1996

February 1996

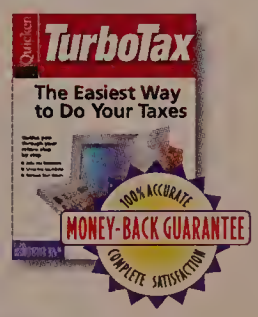
April/May 1996

Try TurboTax FREE for 30 days!

❑ Send me TurboTax for Tax Year 1996 FREE for 30 days as soon as it's available (Final 1040 version usually releases in mid-January), and send my free gift *immediately*. If not 100% satisfied, I'll return TurboTax within 30 days, owe nothing, but keep my free gift. Otherwise, you'll bill my credit card for the amount below (plus shipping and handling).

❑ TurboTax Deluxe CD-ROM $49.95
❑ MacInTax Deluxe CD-ROM $49.95
❑ TurboTax for Windows® 3.5" HD $39.95
❑ MacInTax for Macintosh® 3.5" HD $39.95

Shipping and Handling:
$5 for the first item, $3.50 each additional item.**



1-800-4-INTUIT Ask for Special Offer #561043.
(1-800-446-8848)

Or see your local software retailer.

**Please add all applicable state and local taxes (except AK), based on the destination of the order. (All Shipping/Handling subject to tax except in AK, CA, IL or NJ.) Intuit reserves the right to correct all tax rates and/or collect all sales tax, as required by law. *For retail purchases attach a copy of sales receipt and enclose $5.00 U.S. for shipping and handling. (Check or money order payable to Intuit.) Send to: Intuit, TripMaker offer, 2650 E. Elvira Road, #100, Tucson, AZ 85706-7180. © 1996 Intuit. TurboTax, MacInTax, and EasyStep are registered trademarks of Intuit. Other trademarks are the sole property of their respective owners.

PC WORLD

TOP 5 HOME PCs

	SYSTEM	Street price (10/3/96)	Overall rating	PC WorldBench score	Reliability/ service rating	Setup rating	Comments	Reader service number
1	Dell Dimension P200v 800/388-8542 http://www.dell.com	$2299	78	202 very good	best/ best	fair	**FEATURES:** P-200, 16MB of RAM, 1.6GB hard disk, 8X CD-ROM drive, 28.8-kbps fax-modem, 15-inch monitor. **PRO/CON:** Your basic no-frills muscle machine with speedy performance at a very reasonable cost. Price here includes Microsoft Office Pro but no other software. Mail-order only, so best suited for experienced users.	702
2	Compaq Presario 4402 800/345-1518 http://www.compaq.com	$1999	76	153 satisfactory	best/ fair	very good	**FEATURES:** P-133; 16MB of RAM; 1.6GB hard disk; 6X CD-ROM drive; 33.6-kbps fax-modem with voice mail, speakerphone, DSVD; remote control for telephony and cursor; 15-inch monitor. **PRO/CON:** Very easy setup, great price, middle-of-the-road performance. Includes Microsoft Encarta and Quicken. A solid entry-level machine.	703
3	Micron Home MPC 800/223-6571 http://www.micron.com	$2799	76	215 outstanding	best/ best	good	**FEATURES:** P-200; 32MB of RAM; 1.2GB hard disk; 8X CD-ROM drive; 28.8-kbps fax-modem with voice mail; 17-inch monitor. Includes Microsoft Office Pro. **PRO/CON:** True power machine for home or home office. Nice software package includes Quicken, Microsoft Encarta, and MechWarrior 2. On the expensive side.	704
4	Gateway 2000 P5-166 Family PC 800/846-2000 http://www.gw2K.com	$2349	75	199 very good	fair/ good	good	**FEATURES:** P-166, 16MB of RAM, 2.5GB hard disk, 8X CD-ROM drive, 17-inch monitor. **PRO/CON:** Very fast, good price, big hard drive and monitor. Available only through mail order. Gateway 2000's so-so reliability rating and phone-based support make this a system for the confident user.	705
5	Nexar 9000 508/836-8700, 888/639-2722 http://www.nexarpc.com	$2199	75	188 very good	[1]	fair	**FEATURES:** P-166, 16MB of RAM, 1.2GB hard disk, 8X CD-ROM drive, 28.8-kbps fax-modem with voice mail. **PRO/CON:** Easy access to the CPU, memory chips, and hard disk makes for quick upgrades; very fast performance; nice price. So-so software package does include Infopedia 2.0.	706

Best Buy http://www.pcworld.com/top5soho All products: 908

HOW WE TEST The overall rating is based on reliability and service (30 percent), price (20 percent), PC WorldBench performance (20 percent), setup (10 percent), compatibility (10 percent), and extra features (10 percent). Reliability and service ratings are based on results of PC World's Reliability and Service Monitor survey. [1]Insufficient data.

THE MARRIAGE OF CONSUMER electronics and personal computing moves a step closer this month with the arrival of sleek new home PCs from Sony and Toshiba. But despite solid performance and some nice features, weighty price tags kept both machines from cracking our Top 5. No other new machines made it either, so the honors this month go entirely to former winners.

At the top of the chart once again is the Dell Dimension P200v. This bare-bones muscle machine offers P-200 performance at an affordable $2299.

Just below the Dell are Compaq's Presario 4402 and Micron's Home MPC. Easy to set up and priced at a rock-bottom $1999, the 4402 is a great choice for first-time buyers who don't require great speed. The Micron, on the other hand, is a speed demon, scoring an astonishing 215 on our WorldBench tests. Rounding out the Top 5 are Gateway's Family PC, which provides quick performance and great value, and the Nexar 9000, which graced the Top 5 back in November, lost out to faster machines in December, but returns now thanks to a $100 drop in price.

PC by Sony may sound like a designer cologne, but that line's PCV-90 is a solid Pentium-200 system that offers excellent performance, 32MB of RAM, a 2.5GB hard drive, a sizable software package, and superlative software MPEG playback. It sports one of the better user interfaces we've seen and is ridiculously easy to set up. But the PCV-90 also comes with a designer price: $3478 when equipped with the 15-inch monitor.

Toshiba's Infinia 7200 tries to be both computer and home entertainment center, but this $3548 Pentium-200 is just too expensive. In addition to its 32MB of RAM, 3GB hard drive, and a 17-inch monitor, the Infinia includes a cable-ready TV/FM radio card. The system is easy to set up and comes with Encarta 96, Quicken, and Mayo Family Clinic. If you're looking for a solid computer and happen to need an extra television in the den, the Infinia is definitely worth a look. (For additional information on both Sony's PCV-90 and the Toshiba Infinia, see this month's Top 100).

—*Kirk Steers*

TOSHIBA'S INFINIA 7200 proved too expensive to make the Top 5.

Kirk Steers is a contributing editor for PC World. *Testing performed by Ulrike Diehlmann of the PC World Test Center.* ■

ILLUSTRATION: JEFFREY PELO

S3d and Diamond Multimedia make your system scream.

Fast forward to the future of 3D multimedia. Supersonic graphics. All the power 3D has to offer for business and entertainment on your PC, right here— right now. Stealth 3D™ 2000 from Diamond Multimedia™ does it all with the S3d™ chip on board. Use Diamond's Stealth 3D 2000 together with S3d logo software. They'll make your system scream.

DIAMOND MULTIMEDIA

S3d On board

hit our web site for the real stuff: seek.s3.com

Designed for Microsoft® Windows® 95

S3d is compatible with Windows 95, Windows 3.1, Windows NT, and OS/2.

Circle 213 on reader service card

Microsoft Windows, and the Windows logo are registered trademarks of Microsoft Corporation.
Diamond Multimedia and Stealth 3D are trademarks of Diamond Multimedia Systems, Inc.
All other trademarks are property of their respective companies.

Nightmare on ISDN Street

I TOOK A CLOSE LOOK at my ISDN phone bill a while back, thereby opening up a huge can of worms that took me nearly a year to sort out. The good news is, I eventually ended up with a faster hookup and an enormous refund.

If you're not familiar with ISDN, it's an astonishingly fast two-channel digital communications line capable of transmitting data at 128 kbps. How fast is that? It takes a standard 28.8-kbps modem 45 minutes to download a 9MB file. Going all out on a properly functioning ISDN line, you can get the same file in 8 minutes flat.

My story starts in August 1995, when I ordered an ISDN line from Pacific Bell (see the January 1996 *Home Office* for sordid details). I specified residential service—that's critical to this horror story—because its installation and monthly charges are cheaper than for a business line. For example, with a residential account, your evening, weekend, and holiday calls are free. With a business account, you're stuck paying by the minute around the clock.

OVERCHARGED

WHEN I LOOKED at the November 1995 bill, I realized I was being charged for evening calls that should've been free. Yep, Pac Bell had me on their rolls as a business service. It took a week and a half-dozen calls just to track down a Pac Bell person who could help me. I explained, she listened, and we agreed—I should be switched to residential service.

And how hard could that be? You'd think she could just click an option in a dialog box. But why make things simple? Pac Bell had to terminate my service and make me wait three weeks before a technician could come to my house to install my "new" residential ISDN line.

To add insult to injury, my next Pac Bell bill contained a fee for canceling my business service and a charge for a new service installation. All told, I'm hit for $175. (Why am I not surprised that Scott Adams, creator of *Dilbert*, used to work in Pac Bell's ISDN group?)

I'm now faced with a monumental task: getting reimbursed. See, on one hand, Pac Bell is promoting the dickens out of ISDN. On the other hand, it doesn't have the staff to handle new orders, much less deal with problems. Any time I might have saved with a fast ISDN line was lost waiting on hold (while being told how very important my call is), explaining the problem, and faxing a copy of my bill to a Pac Bell rep. I wait a month. Nothing. I call again. I'm asked to send yet another copy of the bill. Now they want me to fax the bill again, this time to a long-distance phone number.

> Any time I might have saved with a fast **ISDN** line was **lost** waiting on hold, explaining the **problem**, and faxing a copy of my bill.

It takes two months, I finally receive a refund of—get this—$27. I get the feeling Dilbert's pet Dogbert must be in charge.

NO CONNECTION

IN THE MEANTIME, my ISDN line goes dead. A Pac Bell technician comes out to the house. He looks things over and fixes the problem. Then with a flourish worthy of Houdini, he plucks something from the gray telephone box and shouts, "Aha!" I hate it when repair people say that. It turns out I have something called a Maintenance Test Unit attached to my ISDN line. An MTU is a circuit board that allows the phone company to test your line automatically. The repair guy, much too perky for his own good, tells me an MTU is for analog lines only. Pop it on a digital line and you get a 50 percent performance decrease. And I've had one on for well over a year. Swell.

I talked with three Pac Bell employees and learned that MTUs are standard equipment. What's troubling—and true not only in California—is that because the ISDN market is a burgeoning industry, most technicians are overworked and many aren't adequately trained. The chances are high they'll forget—or not know—that the MTU should be removed from digital line installations. So hang around while your ISDN line is installed, question the installer and, most important, ask them to hand you the MTU before they leave.

Well, it took a year and more than 5 hours on the phone with assorted Pac Bell representatives, but I finally received a refund: a whopping $518. My ISDN connections are now faster than a speeding bullet. And the folks at Pac Bell? They can leap tall buildings for all I care.

FasTrak Home ISDN

Pacific Bell; 800/472-4736, http://www.pacbell.com/products/business/fastrak

READER SERVICE NO. 707

Contributing Editor Steve Bass is a licensed marriage and family therapist and president of the Pasadena IBM Users Group. He can be reached on PC World Online. See page 12 for contact information. ■

ILLUSTRATION: J. D. KING

PC WORLD

MULTIMEDIA EDITION

3-D Chat

INSIDE

M3 3-D Chat Worlds
Who do you want to be today? We review six 3-D avatar chat environments on the Web.

M9 Title Reviews
Mercenaries brings role-playing relief to the old battling robots theme.

M12 Hardware Reviews
Top 5 CD-ROM drives and sound boards.

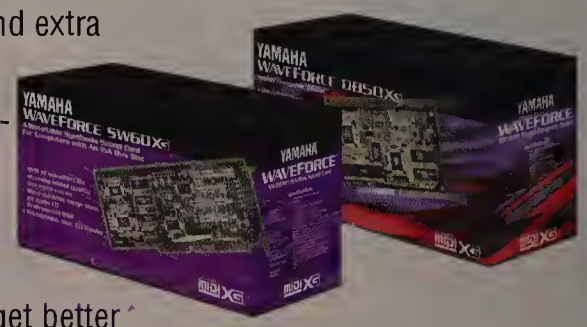
EDITED BY
Kimberly Stein

It's **alarming** how great a **WaveForce** card will sound in your computer. To **hear for yourself,** call (800)888-6768 and get a **free demo CD**. If you like what you hear, get a **$15 Rebate** when you buy.

Is Your Computer Sound Asleep?

HERE'S YOUR WAKE-UP CALL. Yamaha WaveForce sound upgrade cards will shock your old sound card to life like six cups of double espresso, doubie caff.

WaveForce upgrade cards replace the outdated music functions of your sound card. Now you get 4MB of wavetable sounds right out of professional Yamaha keyboards. Plus three on-board professional digital effects processors. And the control and extra features of the Yamaha XG MIDI format. So every nuance of music and games are dramatically reproduced. And General MIDI software sounds better than ever.



If you have a sound card with a WaveBlaster™ connector, choose the DB50XG daughter board. Or, if your PC has an available card slot, fill it with the SW60XG and get better sound quality than an audio CD. The SW60XG includes 18-bit digital to analog converters (DAC). Compared to the 16-bit sound of audio CDs and the 16-bit DAC of other sound cards, the SW60XG doubles and then doubles again the dynamic range. You'll hear louder louds, softer softs, less noise and incomparable performance.

INNOVATIONS WAVEFORCE DB50XG · MATCHTHIS WAVEFORCE DB50XG SW60XG · MULTIMEDIA WORLD ALL-STAR WAVEFORCE DB50XG · GENERAL MIDI XG

So get a WaveForce DB50XG or SW60XG and wake up to the way your computer should sound. WaveForce sound upgrade cards and Yamaha YST multimedia speakers are available at your favorite computer retailers.

YAMAHA®

THE WAY YOUR COMPUTER SHOULD SOUND.

To receive product literature, call (800) 823-6414 Ext.402 or http://www.yamaha.com. ©1997 Yamaha Corporation of America, Computer Related Products, 6600 Orangethorpe Avenue, Buena Park, CA 90620. All rights reserved. Yamaha, WaveForce and the Yamaha logo are registered trademarks of Yamaha Corporation of America. WaveBlaster is a registered trademark of Creative Labs.

BEST BUY · COMPUSA · Fry's ELECTRONICS · MICRO CENTER · NCA COMPUTER PRODUCTS

Circle 258 on reader service card

3-D chat worlds

Who do you want to be today?

BY SHOSHANA BERGER

IT'S SINGLES NIGHT AT THE SPACE STATION. "Fool4U," a droid with all the sex appeal of a celery stalk, is closing in on me. I burn rubber in reverse and smack right into the backside of an earthling who looks like a Gap model and seems utterly captivated by "Alice" (straight out of Wonderland).

"Fool4U" coasts across the room in hot pursuit (okay, I can't really blame him; my avatar is a chick in a racy little getup). "Hello Lucy, where RU from?" he whispers. "Hi Fool. Can you go easy on the acronyms? We've only just met." My cyber-rendezvous with the droid happened courtesy of World's Chat, one of a burgeoning crop of 3-D chat environments you can download off the Web. At minimum, you need a Pentium PC, 16MB of RAM, and 24MB of disk space. (If the site is busy, a download can take up to 30 minutes with a 28.8-kbps modem.)

I visited six of these environments (AlphaWorld, Comic Chat, Tikkiland, Utopia, V-Chat, and World's Chat) to find out the straight dope: Are they worth the download time? Do any interesting conversations ensue? Are the graphics spectacular? Is anyone in the area older than 14?

Well, it's a mixed bag. Of the six, Microsoft's V-Chat is the least childish. World's, Utopia, and Tikkiland win the graphic design award. AlphaWorld gets the gong as most alienating. In the end, old-fashioned comics sucked me in: My favorite is an on-the-fly comic strip from Microsoft dubbed Comic Chat.

The most disappointing aspect of many of the 3-D worlds, though, is that the visitors are so swept up in the novelty that the chat remains superficial, rarely moving past hello before the guy right in front of you flits away.

After spending hours in these avatar-populated worlds, I found myself stalking others in search of a kindred spirit. No matter how slick or smart the engineering, I couldn't shake the instinct to take off the mask and get real with other warm-blooded souls.

ALPHAWORLD

http://www.worlds.net

ALPHAWORLD IS A FINE example of how you can do too much with too little. It boasts a lot of functionality—the avatars actually move their arms and legs as you move. You can look up or down and see from a first- or third-person perspective. Still, the graphics leave a lot to be desired, and the navigation, both by mouse and arrow keys, is clumsy and imprecise.

EVERYTHING'S FOR SALE in AlphaWorld's Bottsville, the land of billboard-supported virtual chat.

Once in AlphaWorld, you hear a soothing fountain that is quickly drowned out by a cheesy electronic jingle. AlphaWorld's gateway is a landing pad surrounded by mountains, with teleports that take you to worlds populated by strange sculptures. You're supposed to be able to copy and refashion them with AlphaWorld's object-building tool. Once you put your designer stamp on an object, it bears your user ID and becomes your private prop- ▶

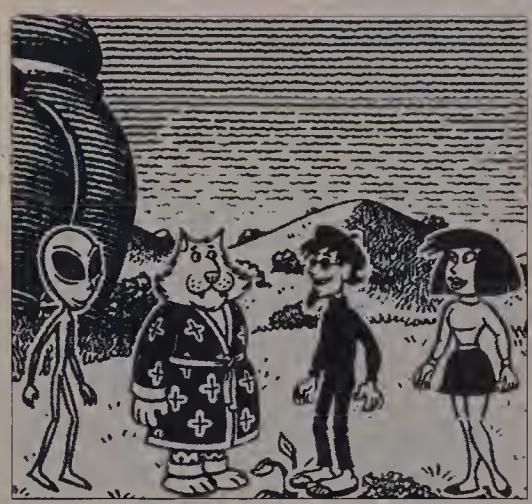
erty. This didn't work for me, however; the building inspector kept saying that I couldn't build in the room I occupied, and offered no further instruction.

AlphaWorld's text-based chat pops up in bubbles over the avatars' heads, but often one bubble blocks another, making it nearly impossible to follow a conversation. (Not a great loss, since most of the folks were too young to drive.)

COMIC CHAT

http://www.microsoft.com/ie/comichat/download.htm

STOP THE PRESSES: Microsoft has a sense of humor. Comic Chat is a delight,



IN COMIC CHAT you can talk to other comic-strip citizens about subjects you select from a huge list that users have generated.

albeit not really a 3-D environment. You begin by choosing a cartoon avatar and a background environment for the strip. You should also type a quick bio; otherwise, when others ask for the lowdown on you, they'll see a frame that reads 'Too lazy to write a description of herself'.

Once you've selected a chat topic, begin typing what you want to say. Comic Chat creates an on-the-fly cartoon frame in which your avatar speaks to other cartoon citizens. Each frame continues the chat according to what's being said, ultimately creating a serial cartoon strip. But these images aren't static—you can change the way your avatar looks by choosing a gesture or emotion, even after you've spoken. The technology keeps track of everyone involved, so when you call one of the other characters by name, it puts the two of you in a cartoon frame by yourselves.

Comic Chat was the only area where I felt that I could determine how things unfolded. Just imagine you're Dilbert telling off your boss or Lucy winning Schroeder's affection.

TIKKILAND

http://mtv.com/tikkiland/

MTV'S TIKKILAND IS modeled after the video channel's beach house, but you

NO MTV BABES in bikinis, but plenty of 14-year-old boys inhabit Tikkiland.

won't find any bikini-clad babes playing water sports here—just embarrassingly boneheaded conversation using real voices. The best way to get to Tikkiland is to teleport from Utopia. Once you've found the entryway (a virtual billboard), move directly into it. You'll hear the whoosh of a light saber and pass through a tunnel that beams you into the next world. Cool.

Tikkiland's avatars are blocky 3-D heads that look like Polynesian masks. You can personalize your look with a 3-D modeler—a nice feature. Your talking-head avatar's jaws flap as you speak.

The Fantasy Island–like landscape offers remarkable depth of field as you draw closer to and farther from objects. One helpful function in the toolbar is the ability to "go near" or "get in front of" other avatars, since you're navigating with arrow keys, not with the mouse. It's something you'll wish for in the other chat lands, where you can get lost out on the prairie and miss all the action.

UTOPIA

http://www.onlive.com/utopiamkt/index.htm

LIKE TIKKILAND, UTOPIA ALSO uses real voices, thanks to OnLive Traveler ▶

TWENTY-FIRST CENTURY MYSTERY DATE: You can search for the person of your dreams on a Utopian space station.

Mind Your Cybermanners

YOU'RE AT A PARTY, so this is no time to act like a lamp shade. If you join a chat just to lurk, you ruin the experience for everyone else. When people address you they expect a response. Here are a few rules of etiquette.

- **Keep it clean.** If you happen to get caught using epithets, profanity, or racist remarks, site administrators will boot you out of the room. Threats, harassment, and sexist jeering are also big no-nos.
- **Don't be a pig.** I know, you have a lot of interesting things to say, but don't monopolize the conversation. You'll intimidate others, and they'll make a quick exit. Get a handle on the topics being bandied about and keep track of who's saying what before you jump in and start plying your wit.
- **Respect your fellow avatars.** Just like in real life, people prefer to have a little personal space around themselves and will get antsy if you invade it.
- **Talk the talk.** Chat isn't just about smiley faces anymore. If you're going to be a citizen, learn the language. Here's a short list:

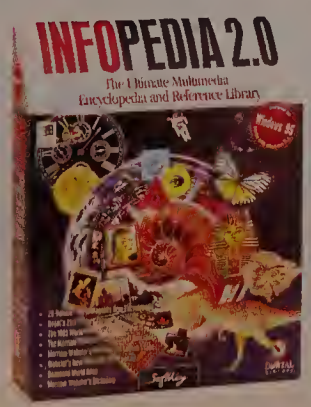
LOL: Laughing out loud
CWYL: Chat with you later
HTHBE: Hope this has been enlightening
GIWIST: Gee I wish I'd said that
IRL: In real life
POV: Point of view
IMHO: In my humble opinion
OTOH: On the other hand
OIC: Oh, I see
HHOK: Ha ha only kidding
hehehe: Laughter

Spend less time searching and more time learning!

Set your work apart with the ultimate multimedia encyclopedia and reference library. INFOPEDIA 2.0 is a complete 29-volume encyclopedia and seven keep-at-your-fingertips reference books.

Simply click on any topic and INFOPEDIA searches all eight references at once, instantly providing you with relevant articles, videos, photos, animations and sounds! Or browse more than 200,000 articles using INFOPEDIA's easy-to-use single-window interface. You can jump to related articles, mark articles for future retrieval, even print out a customized research report. INFOPEDIA makes it easy to find any information you need—without leaving home.

- **29-volume Funk & Wagnalls New Encyclopedia**
- **Roget's 21st Century Thesaurus**
- **The 1995 World Almanac® & Book of Facts®**
- **The Merriam-Webster Dictionary of Quotations**
- **Merriam-Webster's Dictionary of English Usage**
- **Webster's New Biographical Dictionary**
- **Hammond World Atlas**
- **Merriam-Webster's Dictionary**



INFOPEDIA™ 2.0

Softkey International Inc., One Athenaeum Street, Cambridge, MA 02142 USA
1-800-227-5609, www.softkey.com. ©1996 Softkey Multimedia Inc.
All trademarks are the property of their respective holders.

Circle 130 on reader service card

and Talker technologies. But the only problem with using real voices is that there's no more mystery—the place is swarming with men. I was the only soprano on Utopia's mountainous landing pad and that—by my definition—does not a Utopia make.

Unfortunately, using the same technology and modeling language (VRML) has limited the architects' imaginations. Utopia and MTV's Tikkiland (which is accessible through the Utopian teleport) have a similar look and feel and use the same avatars and method of navigation (the arrow keys).

If you own a microphone, a sound card, speakers, and a muscular PC, you can participate in Utopia's and Tikkiland's streaming, person-to-person chat. Transmission quality varies; at times it's clear as a bell, at other times muffled and choppy. What's more, even though there was only a small crowd assembled, everyone ends up talking at once, turning chat into a cacophony of nonsense. I couldn't figure out why everyone was talking to "Dave," who sounded like a two-pack-a-day, 50-year-old executive. Turns out he was the tech support person.

V-CHAT
http://www.msn.com/v-chat

THE MAKERS OF V-CHAT deserve a salute for offering multiethnic avatars—a very refreshing sight after the blinding

V-CHAT'S FISHBOWL is one of seven virtual spaces where you can converse.

whiteness that you'll encounter in other chat environments. Even though it's as easy to find nonsensical dialogue in Microsoft's V-Chat as it is in any of the other worlds (see "A Bit o' Chitchat"), V-Chat's citizens are fairly sophisticated—just as long as you remain in the Adult Forum (which, thankfully, is actually meant for people who are over the age of 18, not perverts).

V-Chat offers several environments, not just the cliché futuristic landscapes. A Lodge features a crackling fire, sofas, hardwood floors, and mountains visible through the windows. Or you can talk your heart out in Fishbowl, Little House, BugWorld, TableTop, Lunar Islands, and Private Spaces. The screen pixilated whenever I moved around in some of the rooms, however.

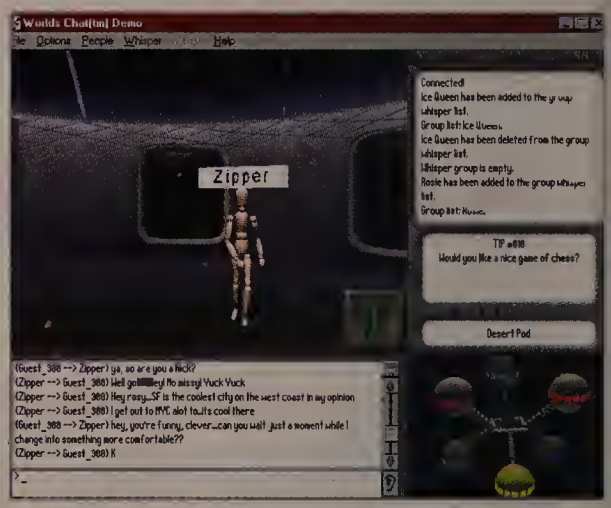
Unfortunately, the avatars are 2-D and not graphically impressive. But you can control their expressions, make them wave hello, flirt, smile, grimace, or do something silly as the text scrolls below.

WORLD'S CHAT
http://www.worlds.net/

THE WORLD'S CHAT avatar gallery is by far the most innovative of all the environments I explored. Before entering, you must choose an alter ego from within a labyrinthine three-dimensional art museum with a variety of avatars hung on the walls in picture frames.

When you find your match (be it the guy who looks a lot like your Uncle Fred or a cartoon vamp with legs you wish you had), you simply click on the picture, and poof—instant plastic surgery.

The main room—a space station with big windows looking out on a galaxy of stars—serves as a gateway to other



HAVING AN IDENTITY CRISIS? It's never too late to choose a new you in World's Chat.

World's Chat environments that advertise themselves like billboards on the walls. World's Chat has a window strip at the bottom where the text-based chat scrolls by, and another window with tips and a list of who's present. You can also mute the crowd or whisper if you want to have a private chat.

On the downside, it's impossible to get in front of another avatar, as you can in Utopia and Tikkiland. And positioning your avatar with the mouse takes some getting used to.

Shoshana Berger is a producer for PC World Online. ■

A Bit o' Chitchat

IT'S ASTONISHING WHAT PEOPLE WILL SAY and do under the veil of anonymity. Beyond the perfunctory hellos and hehehes, a random sort of id-speak surfaces as people type anything that comes to mind. Below is a snippet of fireside chat from the Lodge, in Microsoft's V-Chat. The names were changed to protect the guilty.

BlueBird: "I think John has passed out"

SupperClub: "John, you still breathin'?"

SupperClub: "Tommy, wake him up"

BlueBird: "Something just cocked up"

John Smith & Bros.: "Yes, Pamela, I'm breathing"

Burnout: "Logging bad"

EmeraldEyes: "There ya go, I just uploaded it"

SupperClub: "My furball was on fire and he was dropping and turning into Cajun lamb chops, but then he landed in the shower, then all done"

Grab video images from any VCR, TV, camcorder into your PC

GrabIT!

Take a snapshot of your favorite video from any video source in 16.8 million colors. You can use it for your cool web page publishing, multimedia presentations, disk-based catalogs, personal photo album, image database, digital greeting cards, newsletters, E-mails and more. The applications are only limited by your imagination.

It's Easy to use

1. Simply plug in GrabIT and connect it to a video source
2. Preview motion video as it sequences through 6 preview screens
3. Simply click [save] button on one of the 6 screens to complete

Unique software interface. When capturing from a full motion video, it is not always easy to get the right picture at the right instance. GrabIT gives you 6 frames to choose from at any one time. No frustration from getting the right image.

Only $149.90
Retail Price

FEATURES

- Grab images in 16.8 million colors
- Preview in full-color
- Real-time motion sequence preview
- Real-time color adjustment during preview
- Easy parallel-port connection
- No power adapter or batteries required (Powered by the Desktop PC or Notebook PC)
- Includes video cable, keyboard-powered cable for desktop, keyboard-powered cable for notebook, keyboard port extender and parallel port extender cable.
- Free PhotoMorph 2 Software CD-ROM

Includes $99 worth of Award-Winning PhotoMorph 2 software CD-ROM. A Powerful Video Editing and Morphing Software

PhotoMorph 2 is undoubtedly the most highly acclaimed video special effects package ever created for the Windows PC. Its claim to fame is simple: bring images, stock photos, and video clips to create compelling, high quality video productions with ease. With six elegant effects editors and hundreds of special effects, a complete plette of video amazement makers can be found in PhotoMorph 2. The CD-ROM includes PhotoMorph 2 software, PhotoMorph 2 tutorials, over 250 images ready to be used in your video products, nearly 100 PhotoMorph projects and much more.

Available at

EGGHEAD
Computer Software & Hardware
1-800-EGGHEAD

MICRO CENTER
THE COMPUTER DEPARTMENT STORE

AIMS·Lab

Visit our web site at http://www.aimslab.com

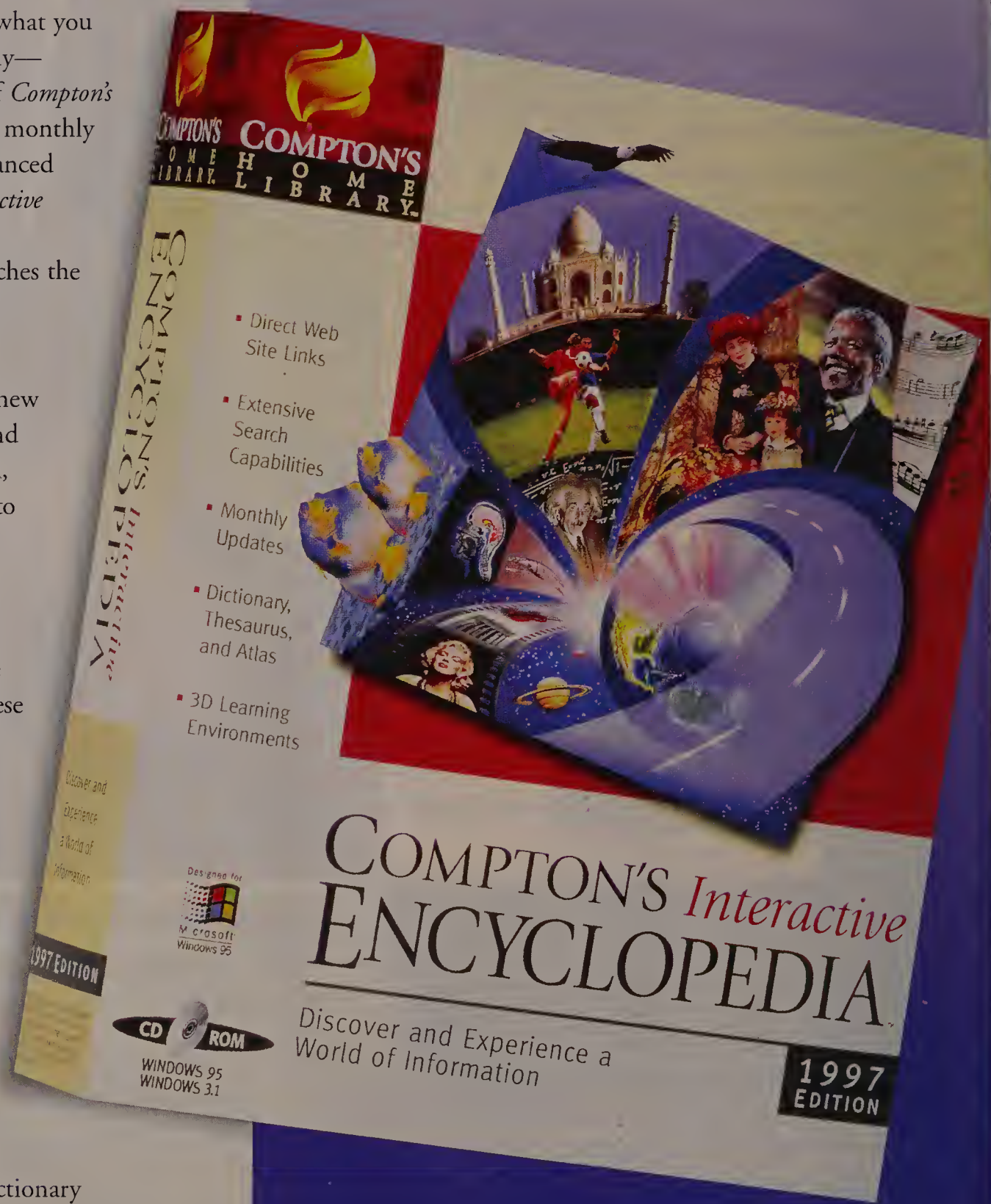
Call Global Computer Supplies at 1-800-8GLOBAL, TigerDirect at 1-800-888-4437

AIMS Lab Inc., 46560 Fremont Blvd #105, Fremont CA 94538. Phone 510.661.2525 Fax 510.252.1572
© 1996 AIMS Lab Inc. GrabIT is a registered trademark of AIMS Lab Inc.
All other trademarks or registered trademarks are property of their respective owners.

Circle 19 on reader service card

THE POWER OF KNOWLEDGE AND THE WELL-CONNECTED.

Now you can find exactly what you need—instantly and easily—with the 1997 Edition of *Compton's Interactive Encyclopedia*. With new monthly updates, direct Web links and advanced search capabilities, *Compton's Interactive Encyclopedia 1997* is the complete multimedia encyclopedia that searches the world to answer your questions.



MONTHLY UPDATES

The Monthly Updater downloads new articles, updates existing articles, and provides new Web links each month, so you know you always have access to the most current information.

DIRECT WEB LINKS

Hundreds of built-in links take you directly to the most informative Web sites related to your topic. These links have been pre-selected by research specialists, so you can easily access the very best of the Internet.

NEW SEARCHING CAPABILITIES

Whatever your question, *Compton's Interactive Encyclopedia* advanced search capabilities pinpoint the most relevant answers, extracted from more than 37,000 articles; 8,000 pictures; 100 videos, slide shows, presentations, and animations; and more. Timelines, an atlas, and a dictionary provide even more information.

So, whatever your questions, *Compton's Interactive Encyclopedia* is the fastest route to the answers.

COMPTON'S HOME LIBRARY is a collection of versatile, easy-to-use products that have been carefully designed to meet your home information needs.

COMPTON'S INTERACTIVE ENCYCLOPEDIA 1997 EDITIO

Multimedia CD-ROM for Windows® 95 and Windows 3.1

Compton's NewMedia Inc. A subsidiary of SoftKey International Inc.
One Athenaeum Street, Cambridge, MA 02142
Customer Service: 1-800-227-5609 Web site:http://www.comptons.com
Come visit the Compton's NewMedia Forum on America Online, keyword comptons.
All trademarks are the property of their respective owners.

Circle 200 on reader service card

Mechs for Hire in MechWarrior 2 Prequel

HEAT TRACKING CASTS an eerie glow on your surroundings in MechWarrior 2: Mercenaries.

ENTERTAINMENT

IN A SOCIETY where megaton piloted attack robots keep the peace, there are only a few rules for survival: Never stand still. Shoot anything that moves. Don't overheat. **MechWarrior 2: Mercenaries**, a 3-D futuristic combat game from Activision, adds a much-needed infusion of role-playing to a familiar battling-robots theme. Dedicated Mechies who've followed this series may claim an edge in understanding the secrets of robotic warfare, but rookie pilots needn't worry, thanks to a game within a game that lets novices think as well as shoot.

It is the year 3039, and after 300 years of war, five remaining groups battle for control of the Inner Sphere. As a freelance mercenary I joined an existing unit, opting for immediate action rather than the role-playing aspects of Mech management, which I tried later. After some training runs, I worked through more than 30 challenging missions that brought various rewards of money and bounty upon successful completion.

Mercenaries marks the debut of a new 3-D graphics engine; and the textured terrain, buildings, and Mechs turn a formerly flat world into a faster-moving, more explosive environment. New effects, like rain, snow, and driving sandstorms, add to the challenge of controlling your robot in battle. At times I was so dazzled by the effects, I lost concentration on my impressive digital opponents.

Unlike many combat games set in the future, where success means simply shooting faster and straighter, MechWarrior 2: Mercenaries delivers fascinating subplots woven into many of the missions.

Mercenaries may intimidate first-timers because the manual only touches on the intricate historical background. However, the role-playing features and rich 3-D graphics will tantalize futuristic combat fans. Once the Mech world hooks you, the new multiplayer MercNet interface will have you searching the Internet for new robots to destroy. —*Mark L. Cohen*

MechWarrior 2: Mercenaries

$49 list; Activision; 800/477-3650; http://www.activision.com. Grade: **A-**

READER SERVICE NO. 781

THE MOOR THE MERRIER

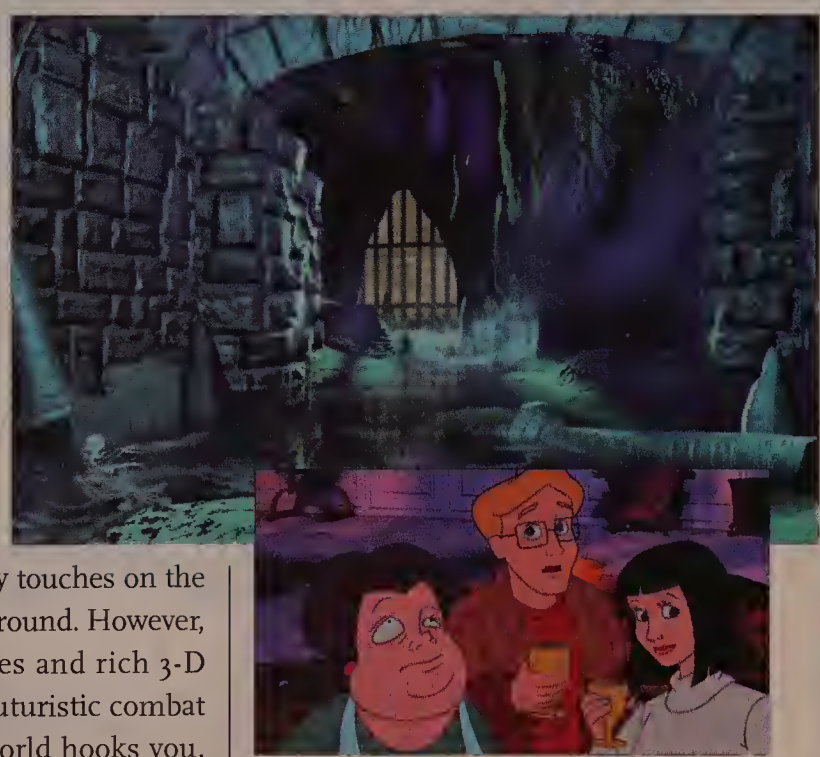
THE MAGICAL MOORS of Scotland reveal their mysteries in **Clandestiny**, a richly animated, interactive mind teaser from Trilobyte, developers of The 11th Hour.

The story begins as a young Scot, Andrew MacPhiles, must claim ownership of his birthright, a centuries-old ghostly castle nestled on the moors. All he has to do is break an evil curse that has haunted his family for generations. There's just one problem: The MacPhileses are a cowardly clan, hardly an asset when you must enter dark hallways, explore secret chambers, and converse with hideous ghosts and ghouls.

A beautifully animated story unfolds as you solve each challenge. Don't let the "teenage and older" rating fool you. My kids loved the game, but long after they hit the sack I struggled with the puzzles.

You begin in the entry hall of a dark castle—and I do mean dark. I had to change my monitor's brightness setting to see where I was going.

The clues hidden in each room are marked by throbbing brain icons, which you click to reveal riddles you must solve. Tricks and double meanings lace each riddle; if not for the interactive help system, I'd still be in the foyer.



A SEA CAVE is but one of the spooky environs to explore in Clandestiny.

Clandestiny's brainteasers are varied, entertaining, and challenging—and all this without a single grisly murder or exploding body part. —*Mark L. Cohen* ▶

Clandestiny

$55 list; Trilobyte/Virgin; 800/874-4607; http://www.tbyte.com. Grade: **A-**

READER SERVICE NO. 782

SAND TRAP

YOU SAY YOU'RE A Malcolm McDowell groupie? Or perhaps you're an Egyptologist? An avid interactive movie fan, maybe? If you answered yes to any of the above, **Mummy: Tomb of the Pharaoh** is for you. For the rest of us, though, Mummy offers medium-difficulty puzzles, a so-so story line, good sound and music, and a few unintentional laughs. In general, this may be the title Interplay least wants historians to dig up in a few hundred years.

The story involves a mysterious Egyptian chest found at the site of a National Mining Corporation dig. As a trouble-shooter for NMC, you must determine if the site contains actual artifacts.

McDowell is entertaining as the creepy site manager, slinking around and delivering thinly veiled threats.

Mummy's puzzles range from innovative to point-and-click simple. With a little more of everything—variety, challenge, and atmosphere—Mummy: Tomb of the Pharaoh would be something to really get wrapped up in. —*Hugh Foster*

MUMMY: TOMB OF THE PHARAOH provides a good framework for an interactive movie.

Mummy: Tomb of the Pharaoh

$35 street; Interplay; 800/468-3775; http://www.interplay.com. Grade: **C+**

READER SERVICE NO. 783

A BEACON FOR VETERAN PUZZLERS

LIKE MANY GAME MAKERS before it, Sierra On-Line takes a stab at out-Mysting that best-selling CD-ROM in the painfully challenging but gorgeously executed **Lighthouse: The Dark Being**. The game is an absorbing if unspectacular clone of the venerable M-game's better qualities.

In the gaming universe, all fantasy worlds are either chronically broken or missing their instructions. Here, your character follows a scientist from his light-

SOLUTIONS TO Lighthouse's many puzzles are logical but excruciatingly intricate.

Circle 216 on reader service card

house home into a parallel universe of—you guessed it—foggy, moodily rendered worlds and retro-style mechanisms that need to be fixed or deciphered.

In this case, though, Lighthouse serves up some remarkably engaging 3-D modeled gizmos, like robotic birdmen and bat-shaped flying machines. As usual, you must find and reanimate the scattered pieces. But this task is nicely integrated with a detailed story of a parallel world defending itself with gadgetry against the eponymous Dark Being.

Alas, for all its welcome touches, Lighthouse is not suitable for inexperienced puzzlers or those with weakening eyesight. Veterans seeking a challenge will welcome Lighthouse. The rest of us, though, may need glasses and the hint book to avoid being stranded on its many sandbars. —*Steven Smith*

Lighthouse: The Dark Being

$49.95 list; Sierra On-Line; 800/757-7707; http://www.sierra.com. Grade: **A-**

READER SERVICE NO. 784

ROOM WITH A MUSE

WHEN YOUR UNCLE Last died, you inherited the Last Resort, his mansionlike retreat for creative types suffering from artist's block. In the resort's heyday, its main attraction was the Muse Machine, a contraption capable of magically restoring artists' lost inspiration.

Regrettably, the building has fallen into disrepair, and the evil Toxic Twins have hidden key components of the wonderful machine in various unlikely places. You must find these missing pieces and reinstall them to renovate the property and set up a showdown with the nefarious twins (voices provided by Aerosmith's Steven Tyler and Joe Perry).

That's the scenario of **9**, a challenging, visually stunning, celebrity-filled adventure from GT Interactive and Robert DeNiro's Tribeca Interactive. Cher, Christopher Reeve, and Jim Belushi also lend their voices to the game.

Each room has a distinctive look, held together by striking, off-kilter wall art that looks like the labels you'll find on old fruit crates. Especially inventive are the Drum Room, furnished with drums and masks, and the Tapestry Room, with its medieval/surrealist wall hangings. The music and sound effects are suitably evocative, though too loud in places (and not adjustable on the beta copy I reviewed).

As with any treasure hunt, you won't get far unless you recognize an Easter egg when you see one. But aside from some minor incongruous violence and occasionally grating audio, 9 is a beautifully rendered, well-crafted puzzler. —*Steven Gray*

A FORTUNE-TELLING machine sets you on your way through the adventure 9.

9

$49.95 list; GT Interactive/Tribeca Interactive; 800/610-4847; http://www.gtinteractive.com. Grade: **B+**

READER SERVICE NO. 785

Now the hit TV show kids love brings its musical magic to interactivity!

Your kids will join the irrepressible Billy and Ruby Biggle as they journey through a melodious landscape to recover lost instruments for Professor Majorchord's big concert. Beautifully animated, Kidsongs Musical Mystery also teaches memory skills in a fun, musical fashion. And, of course, it offers lots of chances to sing along.

Designed for Microsoft Windows 95

Call 1-800-541-1129 for more information!

Windows is a registered trademark of Microsoft Corporation. Kidsongs® is a trademark of Warner Bros. Records Inc. The Biggles™, Billy Biggle™, and Ruby Biggle™ are trademarks of Together Again Productions, Inc. Used under license. PCWJ

Circle 215 on reader service card

PC WORLD

TOP 5 CD-ROM DRIVES

	CD-ROM DRIVES	Month tested	Street price (10/17/96)	Overall rating	Multimedia performance score	Comments	Reader service number
1	Plextor 12Plex 800/886-3935 http://www.plextor.com	NEW	$329	99	105	**FEATURES:** Superfast 12X internal drive; SCSI bus; tray-feed mechanism; driver support for Windows 3.1, 95, and NT, and OS/2 and Mac. **PRO/CON:** Best access time of any drive we've tested, big 512K buffer, two-year warranty, toll-free support; expensive, no weekend support.	726
2	Sony CSD-880E 800/352-7669 http://www.sony.com/technology	Sept 96	$140	90	79	**FEATURES:** 8X internal drive, Enhanced IDE, tray-feed mechanism, includes adapter card and cables for Sound Blaster card. **PRO/CON:** Good overall performance, reasonable price, generous daily and weekend support, large 256K buffer; no software bundle, no toll-free support.	727
3	Plextor 8Plex PX-83CS 800/886-3935 http://www.plextor.com	Aug 96	$309	90	90	**FEATURES:** 8X internal drive; SCSI bus; caddy-feed mechanism; driver support for Windows 3.x, 95, and NT, and OS/2 and Mac. **PRO/CON:** Speedy, two-year warranty, solid design; expensive, SCSI card not included, no weekend support.	728
4	Teac CD-58E 8X CD-ROM Drive Kit 213/726-0303	Aug 96	$149	89	84	**FEATURES:** 8X internal drive, NT drivers added, Enhanced IDE, tray-feed mechanism with clips for side-mounted use. **PRO/CON:** Strong performer, reasonably priced; no software bundle, limited 128K buffer, no Mac or OS/2 drivers, no weekend support, no toll-free support.	729
5	NEC MultiSpin 6V 800/632-4636 http://www.nec.com	Aug 96	$99	89	65	**FEATURES:** 6X internal drive, Enhanced IDE, tray-feed mechanism with clips for side-mounted operation, includes adapter card and cables for Sound Blaster card. **PRO/CON:** Inexpensive, toll-free phone support; slowest performer in Top 5, no software bundle, no weekend support.	730
	Best Buy					All products:	910

THIS MONTH THE PLEXTOR 12Plex sets a new land speed record as it screams to the top of the chart. The $329 internal drive clocked the best access time we've seen yet. This month we also tested the $249 Philips 8X SCSI-2 CD-ROM drive, which performed erratically.

HOW WE TEST All drives are tested on a Gateway 2000 P5-166XL with 16MB of RAM and Windows 95. At 1024 by 768 at 256 colors, we run Macromedia Director 5.0 I/O benchmark, Microsoft Encarta 96 script, PowerFinder PhoneDisc 96 timed name search, and MindScape CyberSpeed game installation. We run a 98-image slide show in Corel PhotoLab and run the CD-Tach low-level CD-ROM benchmark utility. The overall rating is based on performance (40 percent), features (30 percent), price (20 percent), and support (10 percent). For all ratings, higher is better. Data based on tests designed and conducted by the PC World Test Center. All rights reserved.

PC WORLD

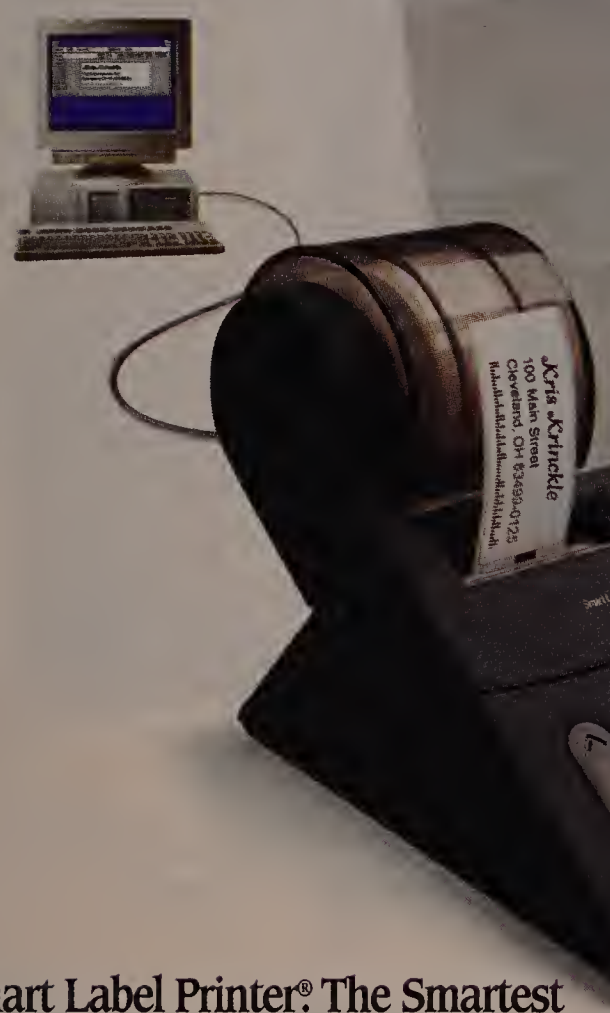
TOP 5 SOUND BOARDS

	SOUND BOARDS	Month tested	Street price (10/17/96)	Overall rating	Audio score	Comments	Reader service number
1	Ensoniq Soundscape Vivo 90 800/776-8637 http://www.ensoniq.com	NEW	$75	112	89	**FEATURES:** Plug and Play, high-quality MIDI wavetable, bargain price. **PRO/CON:** Very good frequency response, low noise, telephone answering device/modem connector supports PC-based phone answering machine or Internet phone, trouble-free installation; no IDE connector.	739
2	Orchid NuSound PnP 32 800/577-0977 http://www.orchid.com	NEW	$135	104	93	**FEATURES:** Plug and Play, IDE and Panasonic CD-ROM interface, 3-D audio, wavetable MIDI. **PRO/CON:** Very good frequency response, low noise, control panel on front of PC; 3-D audio noisy, reversed output channels, no mike monitor except while recording, high distortion on speaker output.	740
3	Creative Labs Sound Blaster 32 800/998-1000 http://www.creativelabs.com	June 96	$149	100	90	**FEATURES:** Plug and Play, expandable from zero RAM to 28MB for downloadable MIDI sounds. **PRO/CON:** Top-quality wavetable sound, good frequency response, trouble-free installation; poor frequency response on microphone input, no toll-free support.	741
4	Aztech WaveRider Pro32-3D PnP 800/886-8859 http://www.aztechCA.com	Dec 96	$69	99	68	**FEATURES:** MIDI wavetable, 3-D audio, Plug and Play, IDE interface. **PRO/CON:** Bargain price, easy installation, effective 3-D sound; poor microphone recording, low line input overload level, no reverb or chorus, no toll-free technical support.	742
5	CrystaLake Model 110 800/888-0557 http://www.crystalake.com	Aug 96	$129	97	87	**FEATURES:** Plug and Play; 3-D sound with adjustable center, fill, and effect depth; stereo microphone input. **PRO/CON:** High-quality wavetable MIDI sound, realistic 3-D sound effects, good frequency response, three-year warranty; poor cross-talk figures, no reverb or chorus.	743
	Best Buy					All products:	911

TWO AFFORDABLE NEWCOMERS blast their way to the top of our chart. The Ensoniq Soundscape Vivo 90 was a solid performer in our tests, and carries a bargain price. The $135 Orchid NuSound PnP 32 landed in the number two slot, thanks to its excellent audio scores.

HOW WE TEST All sound boards are tested on an Audio Precision System Two audio test set to determine their frequency response, cross talk, noise, distortion, and other audio characteristics. We judge each board's MIDI (Musical Instrument Digital Interface) and wave audio quality by comparing sample sounds against original source material on digital audio tape. The overall rating is based on performance (40 percent), features (25 percent), price (25 percent), and support (10 percent). For all ratings, higher is better. Data based on tests designed and conducted by Liberman Sound. All rights reserved.

"Can't I Print Just One Label?"



The Smart Label Printer®. The Smartest Way To Label Just About Anything.

Let's face it. Printing one label off an entire sheet just isn't smart. So use The Smart Label Printer instead. It's the easy, convenient way to quickly print labels for envelopes, packages, file folders, diskettes, ID badges, Rolodex® cards and VHS tapes–or anything else that needs a label.

Best of all, Smart Label software can capture an address or text right from your computer screen. There's no need to retype it. Which means you can print it instantly or save it to the built-in database. You can even customize it with fonts, graphics and bar codes. What's more, you can print a label without exiting an application, whether it's in an MS-DOS, Windows or Macintosh system.

The Smart Label Printer® EZ30. And The Smart Label Printer® Pro. Printing labels any other way is a waste.

Call for yours today.
1-800-688-0817 or e-mail to info@seikosmart.com.
On the Web at www.seikosmart.com.

SII
Seiko Instruments

Circle 188 on reader service card

Available at: CompUSA The Computer Superstore · Computer City · Fry's Electronics · OfficeMax · Elek-Tek Computer Wonderland

Call: MicroWarehouse at 1-800-367-7080, MacWarehouse at 1-800-255-6227, PC & Mac Connection at 1-800-800-1111, Global Computer Supplies at 1-800-8GLOBAL, Inmac at 1-800-972-3212, or MISCO/Power Up at 1-800-876-4726.

Anatomy

of Excellence.

Now experience true multimedia with bright colors, excellent focus and high fidelity sound with Delta's *NEW* 17" Multimedia Monitor.

Introducing Delta's 17" Multimedia Monitor the DB-1765 series **(16.1" viewable)**. Delta Products has been making monitors for others for over ten years. Now they are coming direct to you with this years most exciting multimedia, Plug-n-Play monitor.

Whether you are using it for word processing, music, or sophisticated CAD-CAM programs, Delta will make viewing a pleasure. Delta's line of 15" **(13.8" viewable)** and 17" Multimedia Monitors are quality built to rigid technical standards. Available in flat screen with super fine dot pitch, the 15" and 17" monitors come with up to 1280 x 1024 NI full screen resolution, plus software driven, easy-to-use color balance for fine tuning.

As with all multimedia sound is everything. Built into every Delta Multimedia Monitor are state-of-the-art speakers producing excellent highs, and thunderous lows, giving you that extra edge of excitement when playing your favorite action CD.

Delta brand monitors are extremely well priced for major savings, and are backed with a 3-year warranty*. To learn more about this or other fine Delta products, as well as a dealer near you, call our toll free number now. Of course, distributor inquiries are always welcomed.

1-888-88DELTA

1-510-770-0660

DELTA

QUALITY MAKES THE DIFFERENCE

ISO9002 MANUFACTURING CERTIFIED

Designed for Microsoft Windows 95

© 1996 Delta Products Corporation. All specifications are subject to change. All other trademarks or trade names are the property of their respective companies. *2-year parts and labor, 3rd year limited warranty. Write: Monitor Sales - 3225 Laurelview Court, Fremont, CA.

Circle 71 on reader service card

Xerox Corporation ❧ Tivoli Systems ❧❧❧ SILVER SADDLE—Alexander Communications ❧ Copithorne & Bellows ❧ Miss Sarah Delatte ❧❧❧ BUCKING BRONCO—Bitstream, Inc. ❧ Broderbund Software ❧ Ex Machine, Inc ❧ Ingram Micro ❧ Logitech ❧ Rainbow Technologies ❧ The Software Source Co., Inc. ❧ Software Publishers Association ❧ Universal Serial Bus ❧ Xircom, Inc. ❧ 1996 Micrografx Chili For Children Cook-Off ❧

GOLDEN SPUR—Adobe Systems ❧ Digital Directory Assistance ❧ Hewlett Packard Company ❧ Infoworld Conference & Media Group ❧ Novell ❧ Prodigy Services Company ❧ Softbank Services Group ❧ Tektronix, Inc.

The funds raised by
The Micrografx Chili For Children Cook-Off
helped unite many missing children with their parents.
Thanks to your generous contribution, they now
have a lot more to smile about.

NATIONAL CENTER FOR MISSING & EXPLOITED CHILDREN

MICROGRAFX CHILI FOR CHILDREN
A RECIPE FOR HOPE

MICROGRAFX
Proud patron of the
Chili for Children Cook-Off

1996 CATTLE BARON SPONSORS

AT&T · 20th anniversary COMPUTER ASSOCIATES · IBM · IDG INTERNATIONAL DATA GROUP · Inc. MAGAZINE · intel · Intuit · LIGHTWORKS TECHNOLOGY FOUNDATION

Lotus · Microsoft · NETSCAPE · PictureTel · SOFTBANK COMDEX · Starfish Software Smart Internet Solutions · Tivoli · WALL DATA

For more information on '97 sponsorship opportunities, please visit our web site at www.micrografx.com/chili.html

TECHNOLOGY UPDATE

Fifteen years of microelectronic research makes conventional antennas a thing of the past!

This little box uses your home's electrical wiring to give non-subscribers, cable subscribers and satellite users better TV reception on your local broadcast networks!

by David Evans

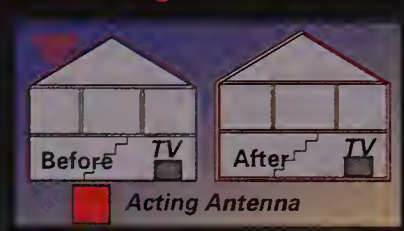
Technology corner

1. Why don't conventional antennas work as well as the Spectrum?

■ When TV signals are tuned at the TV channel's center frequency, optimum tuning has been achieved.

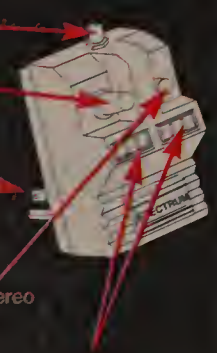
■ Other antennas can't offer center frequency tuning like the Spectrum Antenna can. They only offer such tuning up to the edge of the center frequency. As a result your TV picture remains snowy.

2. How does Spectrum use a home's electrical wiring as an antenna?



Believe it or not, the Spectrum Antenna simply "activates" the giant antenna that already exists in your home. Essentially, it uses all of the wiring throughout your home's walls and ceilings to make an antenna as large as your house for unbelievably clear reception of local broadcasting.

3. Spectrum antenna features



Parallel 75 ohm resistance
For minimum loss of signal

Signal search control
For selecting multiple antenna configurations

Polarized three-prong plug for grounding
For optimum signal grounding to eliminate noise and static

Resonant fine tuner control
For dialing in crisp, clear TV/stereo reception, eliminates ghosting

Dual AC outlets with built-in surge protection
For plugging in additional TV/stereo equipment guarding against damage and electrical surges

Until recently, the only convenient way to guarantee great TV reception was to have cable installed or place an antenna on top of your TV. But who wants to pay a monthly cable fee just to get clear reception, or have rabbit-ear antennas that just don't work on all stations? Some people just aren't interested in subscribing to cable. Or they may live in an area where they can't get cable and TV-top antennas aren't powerful enough. And what about those people who have cable or satellite systems but still can't get certain local stations in clearly?

Now, thanks to fifteen years of microelectronics research, a new device has been developed that is so advanced, it actually makes conventional antennas a thing of the past. It's called the Spectrum Universal Antenna/Tuner.

Advanced technology. Just imagine watching TV and seeing a picture so clear that you'd almost swear you were there live. Just plug the Spectrum Antenna into a standard AC outlet and plug your TV into the Spectrum. You can remove the unsightly clutter of traditional TV-top devices gathering more dust than television signals. Get ready for great reception. Your TV will suddenly display a sharp, focused picture thanks to its advanced design "Signal Search" and "Fine Tuner" controls.

Uses your home's electrical wiring. The Spectrum Antenna is a highly sophisticated electronic device that connects into a standard wall outlet. The outlet interfaces the Spectrum Antenna with the huge antenna that is your home wiring network. It takes the electrical wiring in your house or apartment and turns it into a multi-tunable, giant TV reception station which will improve your TV's overall tuning capability. The results are incredible. Just think how much power runs through your home's AC wiring system—all that power will be used to receive your local broadcasting signals.

How it works. Broadcast TV signals are sent out from the local broadcast station (ABC, CBS, NBC, etc.). They interface with your home's AC power line system, a huge aerial antenna network of wiring as large as your home itself. When the Spectrum Antenna interfaces with the AC line, the signal is sent to its signal processing circuit. It then processes and separates the signal into 12 of the best antenna configurations. These specially processed signals route themselves into 12 separate circuits. The Spectrum Antenna includes a 12-position rotary tapping switch, the "Signal Switch" control, which gathers twelve of the best antenna configurations.

The "Signal Search" offers varying antenna configurations for the user to select from the best signals of all those being sent. The signal then passes through the Spectrum Antenna's special "Fine Tuner" circuit for producing crisp, clear reception.

Risk-free offer. The Spectrum Universal Antenna/Tuner comes with our exclusive 90-day risk-free home trial and a 90-day manufacturer's warranty. Try it, and if you're not satisfied, return it for a full "No Questions Asked" refund.

Who can use Spectrum?

- *Cable users-You have cable but you can't get certain local stations in clearly.*
- *Non-cable users-You don't have cable and want the stations to come in more clearly*
- *Satellite users-You have a digital satellite system but can't get local stations in clearly*

Limited time offer! We realize that most people have more than one TV in their home. We are offering a special discount on additional Spectrum Antennas so you get great reception on all your TVs!

Spectrum Antenna .....$39 $4 S&H

Additional antennas just.....$34 S&H free

Please mention promotional code 1493-PJ-10032.

For fastest service, call toll-free 24 hours day

800-992-2966

comtrad industries
2820 Waterford Lake Drive, Suite 102
Midlothian, VA 23113

Why 7 out of 10 people choose Family Tree Maker*

"Online links make your research easier."

"★★★★... Excellent!" 9/12/95

"...Easy to use..." 9/12/95

"...Best-in-its-class..."

#1 Selling and Best Value

Why should you choose the program 7 out of 10 family history enthusiasts choose? Quite simply, Family Tree Maker's huge community of users and vast database of genealogy records will help you find your ancestors. And this award-winning program gives you the best variety of beautiful printouts.

Find Your Ancestors Fast

Unlike other family tree programs, Family Tree Maker™ actually helps you find your ancestors. Just click the FamilyFinder™ button to search a list of 115 million people from centuries of genealogy records. You'll instantly learn where to find more information about possible ancestors. And, if a distant relative has already traced your family tree, you may find it on one of the accessory CD-ROMs that work with Family Tree Maker. In fact, we have the world's largest collection of actual family trees and genealogy records on CD-ROM. Save precious time while tracing your family tree from the comfort of your home!

Join a Huge Community of Users

We've sold nearly one million copies of Family Tree Maker. And thousands of those users visit our Web site every single day. Just click the Online button from inside Family Tree Maker and you'll be on the Internet, too. Once there, use our FREE matching service to quickly find others working on your same family tree. Create a FREE Web page for your family. Or post a FREE classified advertisement seeking family information. If the Internet contains information about your family, we'll help you find it fast!

Create Heirloom-Quality Family Trees

Family Tree Maker makes it rewarding and fun to preserve your family history for future generations. The program stores literally any kind of information. Start with names, dates, and basic facts. Record cherished family stories. Include photos and video clips, too. Then, choose from a variety of attractive printouts to share with your family—beautiful family trees, family journals, scrapbooks, and more.

Let Family Tree Maker Help YOU

Don't miss the chance to preserve your family history before more time slips away. Order today! Or find Family Tree Maker at a software store near you. Satisfaction guaranteed.

Brøderbund®

*According to PC Data, Reston, VA, 7 out of 10 people buy Family Tree Maker over other family tree programs (Jan-Jun 1996). Available now for Windows 3.1 & Windows 95. Macintosh version available early 1997. Features vary according to platform and price. Accessory CDs sold separately. ©1996 Brøderbund Software, Inc. All products are trademarks of their respective holders.

Circle 36 on reader service card Source Code 530

Call us at 1-800-474-8696 or visit www.familytreemaker.com

HERE'S HOW

REAL PROBLEM, REAL SOLUTION

We get plenty of requests from our Web site—how can we respond best? —*David Jaworski*

DAVID JAWORSKI, whose company offers interactive software for personal and professional growth, found a way to turn hits on his Web site into sales leads—and to respond quickly.

PROVIDENT VENTURES, a developer and publisher of interactive multimedia training CD-ROMs in Bellevue, Washington, had no problem creating a Web site. But then Provident faced a real challenge: turning all those electronic queries into serious sales leads.

—*Editor*

IF YOU BUILD A CORPORATE Web site, visitors will come.

But if you want to turn your site into an effective sales and marketing tool, you must capture information about the people who visit. And you need an automated, effective way to respond to those leads.

When my company put up its Web site a year ago, our goal was simply to disseminate information about our products. (We produce interactive training, professional development, and self-improvement programs and seminars for CD-ROM and the Internet.) That proved successful. Today, many of our customers find us through our Web site (http://www.provident.com).

But we soon found that it's one thing to get people to visit your site and another to reach them proactively. So we changed our site from a simple online brochure to an interactive marketing and sales vehicle.

The goal was to solicit Internet inquiries in an ongoing "relationship marketing" effort and increase our current database of 3000 names to 50,000 by year's end.

PROBLEM: FOLLOWING UP ON CUSTOMER REQUESTS EFFICIENTLY

WE BEGAN OFFERING a free electronic newsletter on the Web site. By filling in a simple HTML form and e-mailing it back to us, people could receive monthly information on personal and professional development topics such as stress management and team building.

We immediately ran into big problems.

The first was collecting the e-mail on our Internet service provider's server. Of course, we wanted to respond immediately to people's requests for information. Several times a day, an employee or a contractor had to log on to the ISP's server and check the site for queries. We wanted our e-mail forwarded automatically to our own internal Microsoft Exchange e-mail system, but we didn't want to spend thousands of dollars on a programmer, and our ISP didn't want to install custom applications on its servers.

A second problem was getting the information from the customers' e-mail into a form suitable for WinSales, our sales automation database. Retyping the prospects' names and addresses into WinSales took one employee two days per month and introduced errors.

The final problem was getting WinSales to respond automatically to all the e-mail. Within four months, we'd accumulated more than 1000 queries. We needed to follow up these requests with calls or letters, but we were often too busy.

SOLUTION: E-MAIL CONVERSION AND SALES AUTOMATION SOFTWARE

OUR SOLUTION CAME in the form of Universal Outbox, an Internet-enabled companion to WinSales. Running on a Windows PC in our office, Universal Outbox captures the HTML-based data from

PHOTOGRAPH: GEOFF MANASSE

a Web site visitor, then translates the data into an ASCII text file that we can import into our WinSales database.

The process works like this: After the prospect fills out the form and clicks the Submit button, the form arrives on our ISP's server as an e-mail attachment. At regular intervals, Universal Outbox's E-mail Scanner automatically logs onto the ISP server and grabs e-mail from an account dedicated to these customer responses. (We set up the "fetching" schedule using the System Agent scheduling application that comes with Windows 95's Plus sidekick.)

E-mail Scanner opens a message, scans it for an attachment, and translates relevant data into a text file. From there, we can import the information into our WinSales sales automation database.

Next, we use WinSales to sort the prospect information by the action required. For example, if ten visitors to the Web site want to receive a printed information packet, the program triggers an action plan, telling us how many packets of information to send out, to whom, and when to follow up. This ability to automatically cover the next step in the process is a blessing in a small company like ours. (We set up the triggers in a program resembling Visual Basic that comes with WinSales.)

> 'If you want to **turn your site** into a real sales and marketing **tool**, you must **capture information** about the people who visit.'

When we're ready for our paper mailings, we power up WinSales and import the records; WinSales does the rest. All we do is print and mail out the letters. When we import the records, WinSales automatically fires out information via e-mail to anyone who requests it that way, so all our work is essentially done in one step.

But Universal Outbox isn't perfect. It supports only MAPI, so if your e-mail system isn't MAPI-compliant, you'll have to deal with workarounds.

We'll face another challenge in a few months as we start handling product purchases on the Web site. E-mail coming to us through the Universal Outbox is not secure, so we'll let people know that they can fax or call if we're asking them for a credit card number.

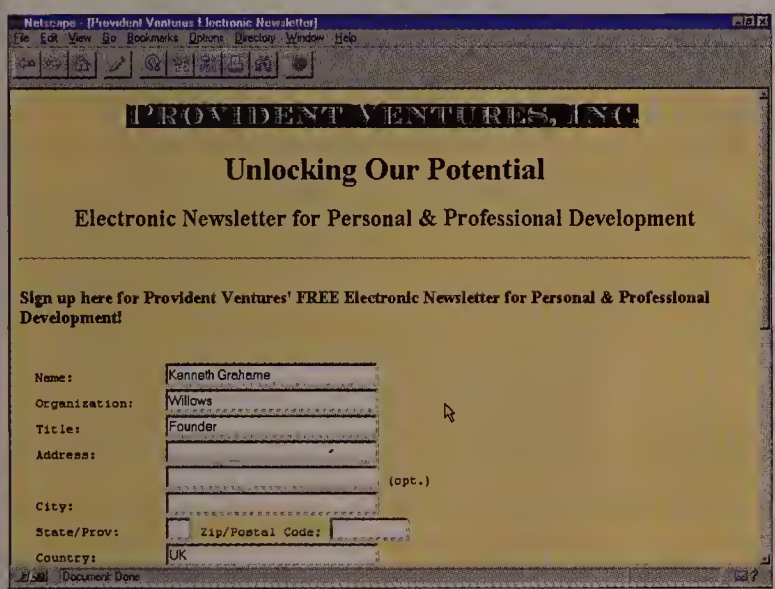
Overall, the Universal Outbox/WinSales technology replaces the equivalent work of a couple of people and improves service to our customers.

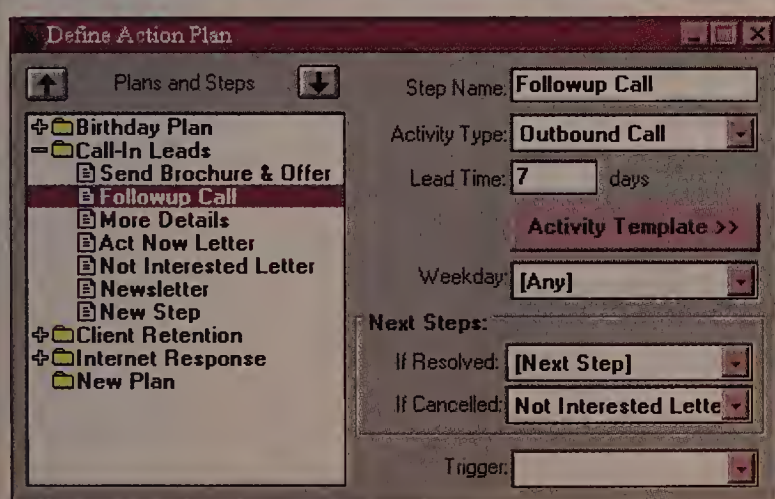
And our Web site stands out from the crowd, because we respond quickly and correctly to customer queries.

• Universal Outbox $1495; WinSales Corp.; 206/747-2464, http://www.winsales.com

READER SERVICE NO. 620

Edited by Bronwyn Fryer





UNIVERSAL OUTBOX'S E-MAIL SCANNER captures data picked up in an HTML form (above) and then translates it for use in the WinSales sales automation program (below).

CONTENTS

ANSWER LINE
240 Batch files 101, create transparent GIF backgrounds
242 Print on tiny envelopes, megabyte mystery, Windows 95's Send To Menu

WINDOWS TIPS
246 Speed PostScript printing, download PostScript header, Win 95 Send To tips, slim PIM
248 Start all apps at once, colorize Schedule+
249 Customize NT's boot menu, keep hands off mscreate.dir files, display speaker icon

WORD PROCESSING TIPS
250 Center text vertically, slow down scrolling, store WordPerfect styles in templates
252 Turn off automatic features

SPREADSHEET TIPS
253 Generate random numbers, calculate Julian dates, download Excel models from the Web

DATABASE TIPS
254 Create push-button menus in Access

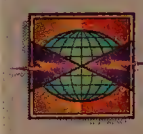
INTERNET TIPS
256 E-mail spoofing, Web pages for disabled users, harmless cookies
258 Search for a a doctor near you

HARDWARE TIPS
260 Boost the speed of dial-up modems

MULTIMEDIA TIPS
262 Have conversations on the Internet, play Video CDs

UPGRADE GUIDE
264 Add a graphics board

INTERNET



DON'T MISS ADDITIONAL HERE'S HOW information on crucial PC software and hardware products. Check out *PC World*'s broadened Here's How coverage, including an expanded version of our *Upgrade Guide* column, at **http://www.pcworld.com/hereshow.html**.

Bronwyn Fryer is a PC World *contributor. If you use PCs to manage people and other resources in a business environment, we want to hear from you. We pay $300 for published columns. See page 12 for contact information.* ■

Batch file primer ◆ Measuring a megabyte ◆ Printing on small envelopes

BATCH FILES FROM THE GROUND UP

I'VE SEEN MANY articles about batch files, but they all assume that the reader is familiar with DOS commands. About the only thing I know about DOS is that some games require it, that typing WIN at the DOS prompt starts Windows, and that typing EXIT in an MS-DOS prompt window takes you back to Windows. Even simple instructions, such as 'save it in a directory' or 'insert a batch file line,' are completely foreign to me. Could you explain, step by step, how to write, save, modify, and use batch files?

Phil Rabitchow, Tarzana, California

BATCH FILES ARE simply text files that contain one or more DOS commands, each followed by a return. They can be very handy for automating common tasks—for example, deleting all files of a given type in a given folder.

Creating a batch file is easy. In any version of DOS starting with 5.0 and including Windows 95's various DOS command prompts, enter **edit** at the prompt to fire up Microsoft's bare-bones text editor (see **FIGURE 1**). Enter your batch file commands, choose *File•Save*, and then give your batch file a descriptive name ending with the **.bat** extension.

Alternatively, you can create batch files directly from the DOS prompt by using the copy command (also shown in Figure 1). Simply type **copy con: filename.bat** where *filename.bat* is the name of the batch file you want to create, and then press **<Enter>**. Type the batch command lines just as you would in a text editor, pressing **<Enter>** after each line. When you finish entering commands, press **<F6>** to insert the end-of-file character on the last line, and press **<Enter>** again to create the file. You should see the message '1 file(s) copied'.

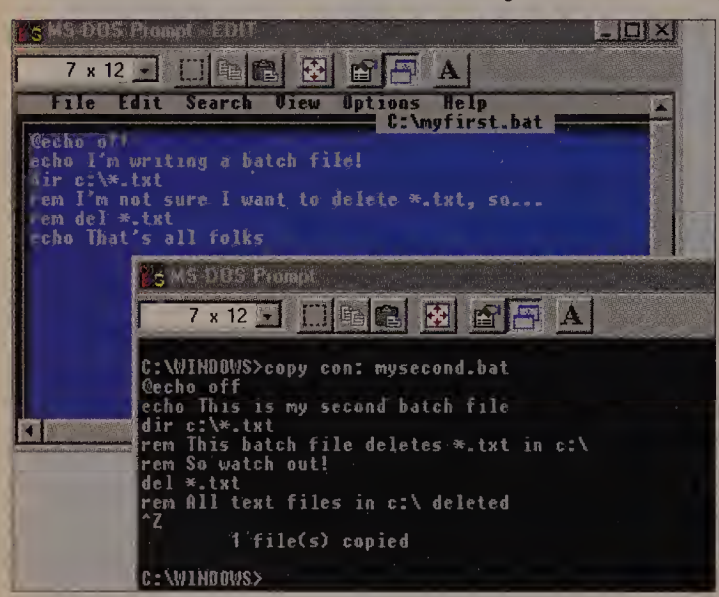


FIGURE 1: CREATE BATCH FILES in DOS or Win 95—enter commands in DOS Edit or use Copy at the command prompt.

To test your new batch file, type the file name, with or without the .bat extension, at the DOS prompt and press **<Enter>**. The commands you placed in the batch file should execute one after another, just as if you entered them individually at the DOS prompt.

That's how you create batch files, but what do you put in them? If you're still using MS-DOS 5.0 or 6.*x*, type **help** at the DOS prompt for a nifty program with hypertext links that describe each command and give examples of how to use it.

Windows 95 lacks the hypertext reference program, but you can get detailed help on individual commands by entering **command /?** at the command prompt in a DOS window, where *command* is the DOS command you want to know more about.

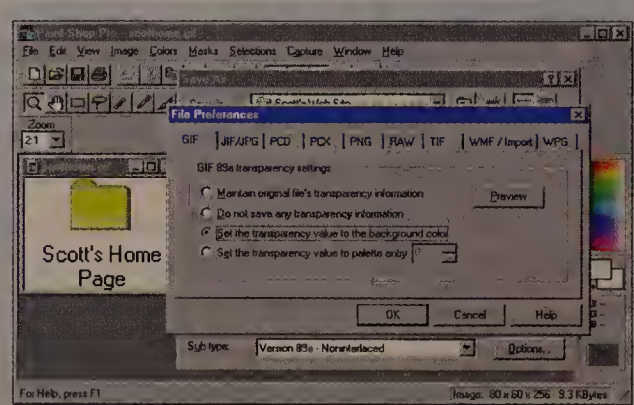
You'll also find a complete list of available commands in the Windows 95 Resource Kit. If your copy of Windows 95 came on CD-ROM, you'll find the Resource Kit in Windows' help file format. Look for the win95rk.hlp file in the Admin/Reskit/Helpfile directory. If you lack the CD-ROM, download the 2.2MB help file from Microsoft's Resource Kit Tools Web page (http://www.microsoft.com/windows/software/reskit.htm).

Once you locate the file, open Explorer, double-click the file, and click *Index*. Enter **command-line commands:native** in the first field, and double-click *native Windows 95 commands* in the second box to view the page listing Win 95's commands. Enter **command-line commands:batch** for a list of commands used only in batch files for program flow control and branching, and for interaction with the user. ▶

Get Transparent GIF Backgrounds With PaintShop Pro 4.1

PaintShop Pro 4.1 (download from http://www.jasc.com/), the $69 alternative to Adobe Photoshop, has many talents. One is the ability to create GIF files with transparent backgrounds, a must for Web graphics that you want to blend with color or wallpaper backgrounds.

To add transparency information to your GIFs in PaintShop Pro, open the file, change the image background color to the color you want to make transparent by clicking the background color swatch at the right side of the screen, then selecting the new color from the resulting palette dialog box. Choose *File•Save as*, select GIF from the 'Save as type' list, and click *Options*. Then select *Set the transparency value to the background color*, click *OK*, and then click *Save*.



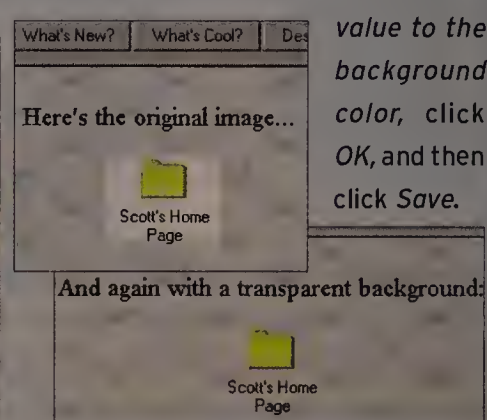
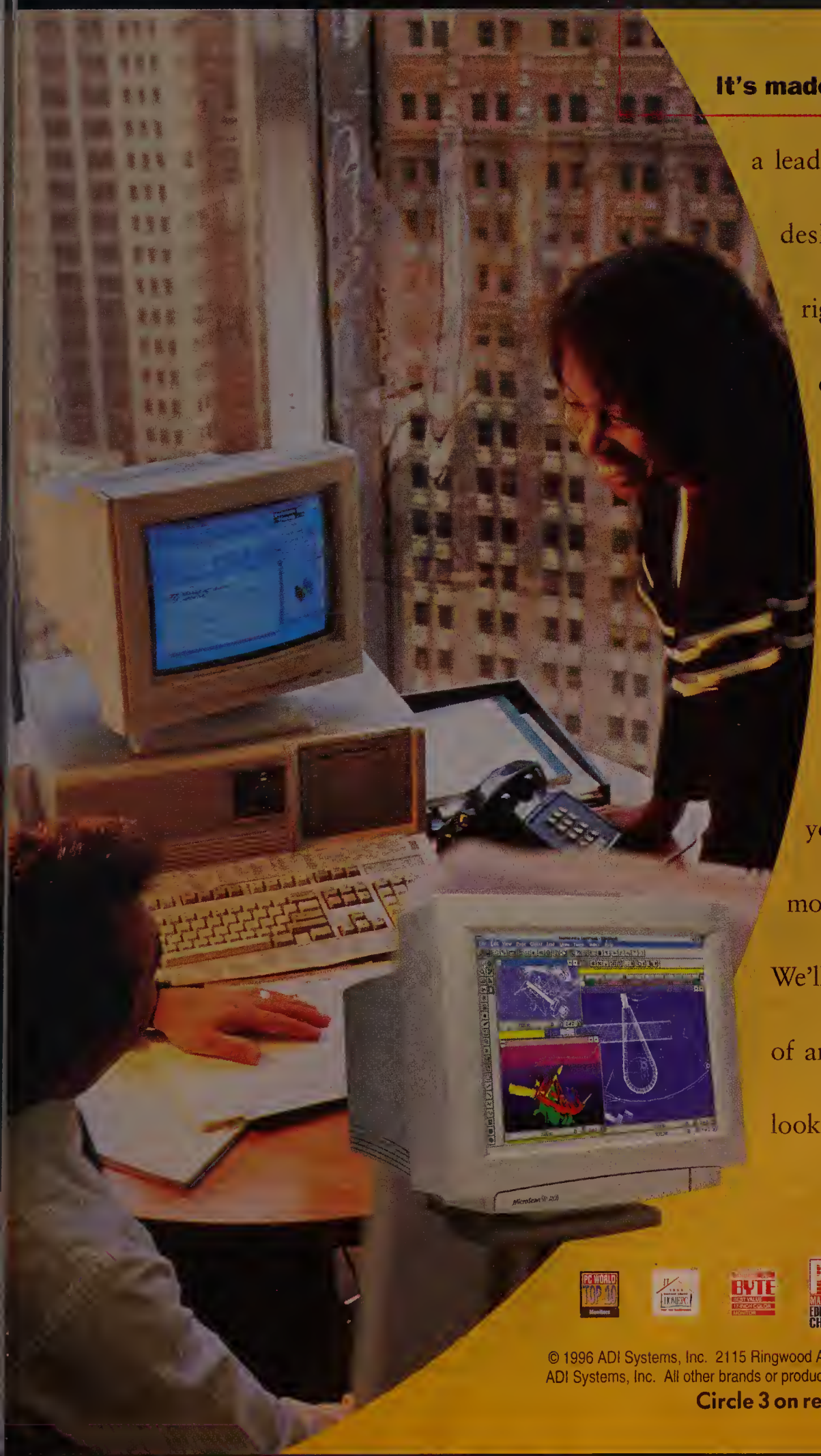


ILLUSTRATION: JAMES O'BRIEN

Chances are, you're already looking at the *best monitor*.



It's made by ADI. And if you have a PC from a leading computer manufacturer on your desk, you're probably looking at one right now. That's because PC makers depend on ADI for the same **value**, **quality**, and **reliability** usually found in those pricier brands, such as Sony and NEC. Why else would ADI monitors be in every major corporation in America? Of course, if you're not presently looking at an ADI monitor, give us a call at **1-800-228-0530.** We'll give you all the details plus the name of an ADI reseller near you. So you can look into one today.

ADI

© 1996 ADI Systems, Inc. 2115 Ringwood Ave., SanJose, CA 95131. MicroScan is a trademark of ADI Systems, Inc. All other brands or product names are trademarks of their respective companies.

Circle 3 on reader service card

TRUE MEASURE OF A MEGABYTE

I RECENTLY BOUGHT a new system with an 850MB Quantum Trailblazer hard drive. When my PC boots, it says 'Hard Disk 0 Quantum TRB 850A Installed', so I know it's got the right drive and the drive is working properly. But when I examine the drive's properties in Windows 95's Explorer or run the chkdsk utility in DOS, both report the drive's capacity as about 810MB. What happened to the other 40MB?

Kevin Anthony, Dix Hills, New York

THEY WERE NEVER there, except in the minds of Quantum's marketing staff. Like many disk drive makers, Quantum defines a megabyte as 1 million bytes. Check the fine print at the company's World Wide Web site (http://www.quantum.com/products/trailblazer/#note).

Most of the rest of the world and most disk-management tools define a kilobyte as 1024 bytes and a megabyte as 1024 kilobytes, or 1,048,576 bytes. Divide 850,000,000 (the size of your drive in bytes by Quantum's calculations) by 1,048,576 and you get about 810, the real capacity of your drive.

ONE LAST STEP TO A PASSWORD BUG FIX

I WAS EXCITED to read about the Windows 95 password cache patch [*Bugs and Fixes*, September 1996] because, of course, the bug is happening to me. However, when I downloaded and installed the patch, the problem remained.

Michael A. Cuttler, Sarasota, Florida

THE PROBLEM IS, your password cache file has already been corrupted by the buggy password caching module in Service Pack 1, so you can't store new passwords there even though you installed the fix. You can find the fix on Microsoft's Win 95 Updates page (http://www.microsoft.com/windows/software/passwd.htm).

The simple solution is to delete the password file and start over. You'll have to reenter any cached passwords to remote shares or servers the next time you access them, but this should be a one-time inconvenience. To delete the file, choose *Start•Find•Files or Folders*, enter ***.pwl** in the 'Named' field, and **c:\windows** (or the directory where you have Windows 95 installed, if different) in the 'Look in' field; then click *Find Now*. Delete any files found, and restart Windows 95.

If your Windows log-in password is blank (which lets you skip the log-in dialog box), you'll have to reconfirm the blank password at this time; subsequent log-ins will revert to hands-off mode. Now, when you enter a Dial-Up Networking password and check *Save password*, Windows 95 will save it in a new, uncorrupted password cache file.

PRINT ON ITTY-BITTY ENVELOPES

I HAVE AN HP 855Cse ink jet that does a fine job printing addresses on business-size envelopes, but it won't handle 6.5-by-3.625-inch envelopes. It seems they're too small to travel through the paper feed mechanism. Is there a trick that will let me print on small envelopes?

Bill Petty, Wilmington, North Carolina

I PICKED THIS TRICK UP from a graphic designer friend: If your envelope is too small to travel through the printer by itself, let it hitchhike through on a larger piece of paper.

Set up the program you're printing from to print addresses in portrait orientation in the upper middle of an 8.5-by-11-inch page. Then send the envelope through with its flap hanging over the top edge of a sheet of letter-size paper. You have to feed each envelope by hand, and I can't guarantee this will work with every printer, but it's probably faster and certainly produces better results than using labels.

Find additional tips at http://www.pcworld.com/hereshow.html. Answer Line welcomes your questions and tips and pays $50 for published items. Scott Spanbauer is a contributing editor for PC World *and the author of* The No B.S. Guide to Windows 95 *(No Starch Press, 1996, 800/420-7240). See page 12 for contact information.* ■

The Absolutely Ultimate Windows 95 Send To Tip

IF YOU'RE ONE OF THOSE Send To junkies, here's a quick way to add destinations to the Send To menu. The trick is simply to add a Shortcut to the SendTo folder by following these steps:

1. Start Windows Explorer.

2. Open the \Windows\SendTo folder.

3. Hold down the right mouse button while you drag the SendTo folder from the left pane into the right pane, and then release the mouse button.

4. Choose *Create Shortcut Here* from the resulting pop-up menu.

Now, when you want to add a program to the SendTo folder, right-click the program in Explorer and choose *Send To•Shortcut to SendTo.* Next time you right-click an object in Explorer and select Send To from the pop-up menu, the new destination will appear.

Hani Musallam, New York

Editor's note: This tip really sends me. But don't try it with folders. Instead of creating a Shortcut to the folder in the \Windows\SendTo directory, it moves the entire folder and its contents there. To add a folder to the Send To menu, use Musallam's drag-and-drop method, or open the \Windows\SendTo folder in Explorer, right-click the right pane, choose *New•Shortcut*, enter the folder's path in the Command line field, click *Next*, then *Finish*.

If you employ your new Shortcut to SendTo frequently, your Send To menu will quickly balloon out of control. When it does, simply create subfolders (as shown in **FIGURE 2**) under \Windows\SendTo, and organize those Shortcuts to your heart's content. And if you just can't get enough Send To tips, check this month's *Windows Tips* for more.

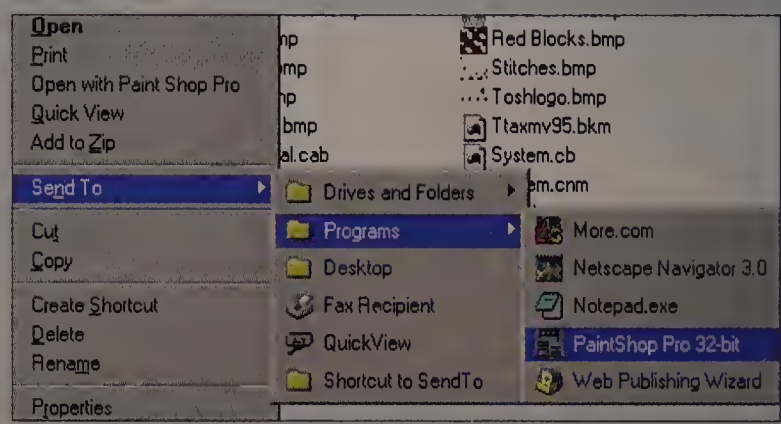
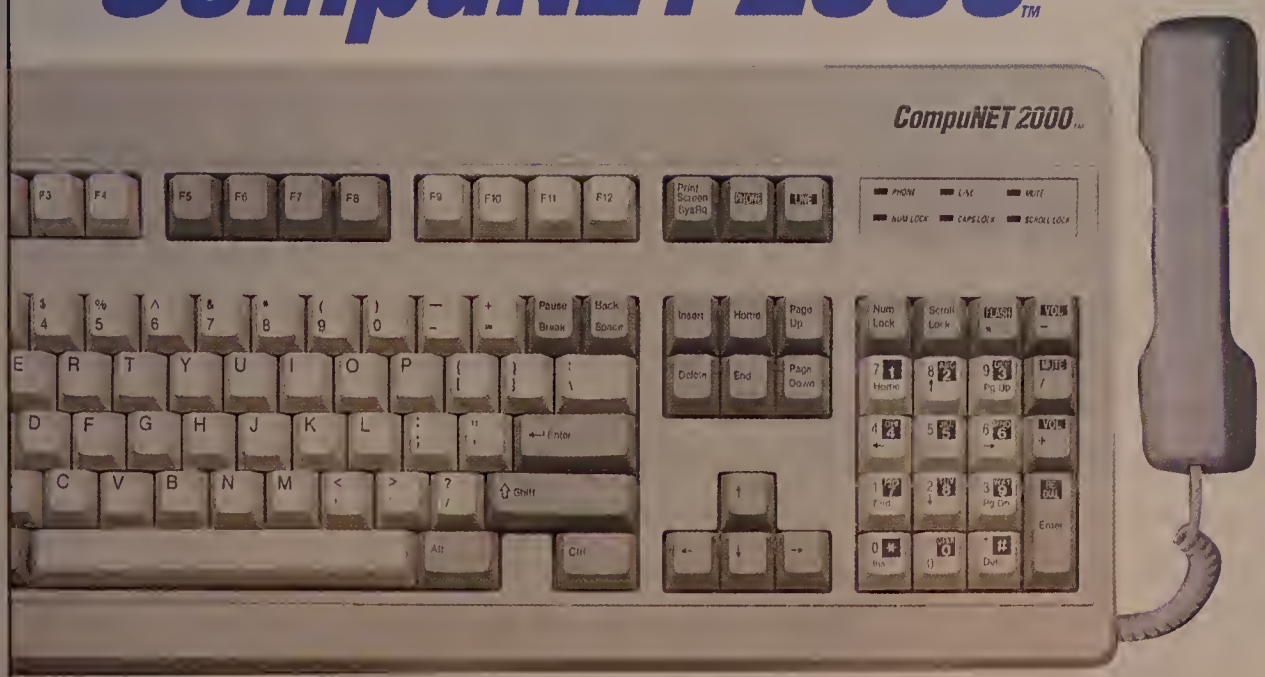


FIGURE 2: ADD DESTINATIONS TO THE SEND TO MENU In a snap by making the SendTo folder itself a Send To destination. When Send To items pile up, organize them into subfolders.

Talk around the world... for the price of a local call.

CompuNET 2000™



Increase Productivity

Make and receive Internet phone calls from your PC keyboard.

Make and receive regular phone calls from your PC keyboard.

Conference between Internet phone calls and regular phone calls.

PC® ACCESSORIES

For more information visit our Web Site at: http: //www.gemini-usa.com

CompuNet 2000 is another innovative product of Integrated Technology USA, Inc.

VocalTec and Internet Phone are trademarks of VocalTec Ltd.

SURE, A MONITOR SHOU
BUT IT'S WHAT'S ON TI

At Compaq, we haven't forgotten what you look for in monitors. Still, we think there should be more to them than just sharp, crisp images (not that there's anything wrong with that). Which brings us to our new line of monitors.

The first thing you'll notice is their sleek new design and advanced on-screen controls for easy and precise adjustments. Of course, upon closer inspection, you'll see they've been engineered through and through to the same high standards that have made our PCs among the best on the planet. Which is why the line features a complete range of innovative monitors. Everything from a value series — including our V50 15" (13.77" viewable) — to high-performance models like our QVision 210 21" (19.5" viewable).

Of course, there's also our P70, a 17" (15.68" viewable).

The Compaq V70 monitor won both the PC Magazine Editors' Choice award and the Windows Magazine Best award in October 1996. The Compaq QVision 210 monitor won the PC World Best Buy award in January and November 1996.* When used with Compaq CPUs which feature Intelligent Manageability. © 1996 Compaq Computer Corporation. All rights reserved. Compaq registered U.S. Patent and Trademark Office. QVision 210 is a trademark of Compaq Computer Corporation. Other products mentioned may be trademarks or registered trademarks of their respective companies.

D Be Nice To Look At. Inside That Counts.

Trinitron tube monitor that delivers an impressive 85 Hz at a resolution of 1280 x 1024. You'll find it's perfect for graphic-intensive applications as well as Windows 95 and Windows NT.

Speaking of features, all monitors provide the very things you've asked for. Like best-of-class refresh rates at superior resolutions. There's also anti-glare technology for reduced eye strain. Even Intelligent Manageability capabilities that let you track inventory and manage problems across a network.*

In other words, the line embodies everything you've come to expect from Compaq. Substance. Quality. And, yes, even good looks. To learn more, visit us at www.compaq.com or call 1-800-869-6865.

COMPAQ

Has It Changed Your Life Yet?

Circle 35 on reader service card

With the AMD-K5™-PR133 processor, CyberMax provides its customers a viable alternative: the freedom to choose a Microsoft® Windows® & Pentium-compatible processor solution that offers superior value. The AMD-K5-PR133 processor delivers equivalent performance of a 133-MHz Pentium (chart below), making it the *best* performance value for today's desktop PC users.

AMD

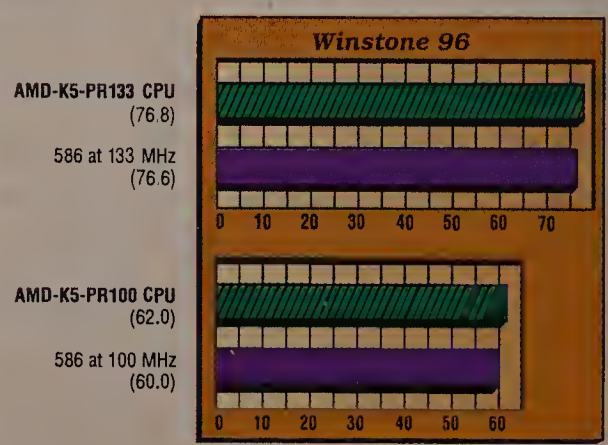
Looking for Value?

MAX *can* DO IT!

Computing takes on a whole new dimension with systems powered by the AMD K5-PR133 processor. AMD has cleverly designed processors with pinout compatibility for future 586- class PC upgrades; and the AMD K5 processor is compatible by design with the growing base of x86 and Windows compatible software. The AMD-K5-PR133 processor clearly delivers the best value for home productivity, Web connectivity and entertainment.

yes NetWare Tested and Approved

The P-Rating of an AMD-K5 processor is determined in an "apples to apples" system-level comparison. PC system manufacturers utilize this methodology, for consistent/objective rates on Pentium-relative performance for Windows applications. And the P-Rating helps end users understand true processor performance equivalences while making their PC buying decisions. For example, if an AMD-K5 processor offers the equivalent performance of a 100-MHz Pentium, it receives a P-Rating of "PR100".



The results are in! The AMD-K5 CPU series outperformed its 586 processor opponents in recent Winstone 96 testing.

Max I9-PP200 $2799

- Intel 200MHz *Pentium Pro* processor
- Matrox Miliennium Video Card w/4MB WRAM
- 32MB EDO RAM, 256K Pipeline Burst Mode Cache
- 3.2 Gigabyte HDD, 3.5" High Density Floppy
- *Upgrade to 4.0 Gig SCSI HDD.....$Call*
- 12x CD-ROM, Ensoniq Wavetable Sound Card
- Altec Lansing ACS-40 & ACS-250 Subwoofer, Microphone
- The Family Office Multimedia CD Bundle
- 33.6Kbps Fax/Voice/Spkrphone Modem w/ *CyberSpace Pack*
- 17" Princeton Graphics *Ultra 17+* NI (15.8" VA) 1600x1200
- *Upgrade to Hitachi 21" Monitor.....$699*
- 104-Key keyboard, Microsoft® Mouse
- Microsoft Windows®95 w/ Microsoft Plus!
- Vertical Tower Case w/ 2 fans
- Limited 3yr Warranty with In-Home Service

$98/MONTH BUSINESS LEASE

Max I8-P200 $2449

- Intel Pentium 200MHz Microprocessor
- STB VELOCITY 3D Video Card w/4MB VRAM
- 32MB EDO RAM, 256K Pipeline Burst Mode Cache
- 3.2 Gigabyte HDD, 3.5" High Density Floppy
- 12x CD-ROM , Ensoniq *Wavetable* Sound Card
- Altec Lansing ACS-40 & ACS-250 Subwoofer, Microphone
- The Family Office Multimedia CD Bundle
- 33.6Kbps Fax/Voice/Spkrphone Modem w/ *CyberSpace Pack*
- 17" Princeton Graphics NI (16.1" VA) Color Monitor
- 104-Key keyboard, Microsoft® Mouse
- Microsoft Windows®95 w/ Microsoft Plus!
- Vertical Tower Case w/ 2 fans
- Limited 3yr Warranty with In-Home Service

$85/MONTH BUSINESS LEASE

P150.....$2249
P166.....$2349

Max A10-PR133 $1849

- AMD K5™-PR133 Microprocessor
- 128-BIT STB LIGHTSPEED Video Graphics 2MB MDRAM
- 32MB EDO RAM, 512K Pipeline Burst Mode Cache
- 2.0 Gigabyte HDD, 3.5" High Density Floppy
- 12x CD-ROM, Ensoniq Wavetable Sound Card
- Altec Lansing ACS-45 speakers, Microphone
- The Family Office Multimedia CD Bundle
- 33.6Kbps Fax/Voice/Spker phone Mdm w/ *CyberSpace Pack*
- 17" Princeton Graphics 28dp (16.1"VA) NI Color Monitor
- 104-Key keyboard, Microsoft® PS/2 Mouse
- Microsoft Windows®95 w/ Microsoft Plus!
- Vertical Tower Case w/ 2 fans
- Limited 3yr Warranty with In-Home Service

$65/MONTH BUSINESS LEASE

Max A9-PR133 $1449

- AMD K5™-PR133 Microprocessor
- 64 bit PCI Video Graphics Card w/2MB DRAM
- 16MB EDO RAM, 512K Pipeline Burst Mode Cache
- 1.6 Gigabyte HDD, 3.5" High Density Floppy
- 8x CD-ROM, Ensoniq Wavetable Sound Card
- Altec Lansing ACS-40 speakers, Microphone
- The Family Office Multimedia CD Bundle
- 33.6Kbps Fax/Voice/Spker phone Mdm w/ *CyberSpace Pack*
- 15" Princeton Graphics *EO* 28dp (13.8" VA) NI Color Monitor
- 104-Key keyboard, Microsoft® PS/2 Mouse
- Microsoft Windows®95 w/ Microsoft Plus!
- Vertical Tower Case w/ 2 fans
- Limited 3yr Warranty with In-Home Service

$51/MONTH BUSINESS LEASE

AMD K5-PR100.....$1399

Max A8-D133 $1299

- AMD 133MHz Am5$_x$86™ processor
- 64 bit PCI Video Graphics Card w/2MB DRAM
- 16MB EDO RAM, 256K Pipeline Burst Mode Cache
- 1.6 Gigabyte HDD, 3.5" High Density Floppy
- 8x CD-ROM, Ensoniq Wavetable Sound Card
- Altec Lansing ACS-40 speakers, Microphone
- The Family Office Multimedia CD Bundle
- 33.6Kbps Fax/Voice/Spker phone Mdm w/ *CyberSpace Pack*
- 15" Princeton Graphics 28dp (13.8" VA) NI Color Monitor
- 104-Key keyboard, Microsoft® PS/2 Mouse
- Microsoft Windows®95 w/ Microsoft Plus!
- Vertical Tower Case w/ 2 fans
- Limited 3yr Warranty with In-Home Service

$45/MONTH BUSINESS LEASE

Max A7-D133 $1199

- AMD 133MHz Am5$_x$86™ processor
- 64 bit PCI Video Graphics Card w/2MB DRAM
- 16MB EDO RAM, 256K Cache
- 1.2 Gigabyte HDD, 3.5" High Density Floppy
- 8x CD-ROM, Ensoniq Wavetable Sound Card
- 16 bit Sound Card, speakers, Microphone
- The Family Office Multimedia CD Bundle
- 33.6Kbps Fax/Voice/Spker phone Mdm w/ *CyberSpace Pack*
- 15" Princeton Graphics 28dp (13.8" VA) NI Color Monitor
- 104-Key keyboard, Microsoft® PS/2 Mouse
- Microsoft Windows®95 w/ Microsoft Plus!
- Vertical Tower Case w/ 2 fans
- Limited 3yr Warranty with In-Home Service

$42/MONTH BUSINESS LEASE

Add a Hewlett Packard 680C Color Printer to any system..... Just $369

Standard on all systems: **2 high speed serial (16,550), 1 parallel (bi-directional) and 1 game port**

The Family Office Multimedia CD Bundle

Corel WordPerfect Suite 7, Novell PerfectHome, Compton's Reference Collection, Compton's Interactive Encyclopedia, Multimedia MBA, Resume Designer, Quicken Special Edition, Corel PrintHouse, Compton's Ocean Explorers, Turn Around Turtle, Pandora's Box, Windows 95 Primer, Internet Mania

(All Pre-installed w/CD back-ups)

Ask about our 90-day "No-Pay" Lease Program!

CyberMax accepts Visa, MasterCard, Discover, American Express and prepaid checks. Purchase orders from government agencies, universities, and Fortune 500 companies can also be accepted. All returned items must have an RMA number and must be in original packaging. The cost of returned freight is not included with any money back guarantee; shipping charges are not refundable. Prices and product descriptions are subject to change without notice. Microsoft, and Windows 95 are registered trademarks of Microsoft Corporation. Pentium and the Intel Inside Logo are registered trademarks of Intel corporation. AMD and Am486 are registered trademarks of Advanced Micro devices, Inc. On-site service may not be available in certain remote areas, and is available only if determined to be necessary by our technicians; GE 4 year warranty is optional. Products may differ from image shown. Leasing Terms: 36 month/10% FMV option, taxes and shipping additional

Circle 74 on reader service card

Why CyberMax?

In the eight years CyberMax has been in the computer business, we've learned what it takes to build a system that bears the marks of quality and reliability.

Product planning actually begins in the labs of our advanced Research and Development facilities, which also serve as beta test sites for such companies as Advanced Micro Devices, Cyrix, Microsoft and Novell. We then build all of our systems with name brand components, and pre-install a generous helping of the industry's leading software titles. Finally, we subject every PC to our intense 16 point, 72-hour quality control check.

Factor in custom configuration availability, top notch service and a money back guarantee, and there's only one solution when shopping for your personal computer needs. Look to CyberMax.

Volume Purchase Program

The more you buy, the more you save at CyberMax. When you order 5 or more systems, you're eligible for our Volume Purchase Discount, as well as reduced Federal Express shipping and handling charges. And if you're a smaller reseller, we'll accumulate your purchases and apply the discounts as you qualify. At CyberMax, every purchase counts!

Service Guaranteed!

All CyberMax systems come with a 3-year limited warranty on parts replacement, plus one year on-site service, a 30-day money-back guarantee, and toll-free technical support.

For an additional three years of on-site service, we also offer the optional GE Service Protection Plus Plan. CyberMax gives you service you can count on!

1-800-437-4596

http://www.cybmax.com

Sales hours: M-F 9am-9pm EST, Sat. 10-4

Systems shipped via FedEx

Canada 1 800 695 4991

133 N. 5th St., Allentown, PA 18102 (610) 770-1808

Reorganize Send To menu ◆ Colorize Schedule+ ◆ Minimize application icons

Faster PostScript Printing

THE POSTSCRIPT printer description language is a standard in the desktop publishing world—but a speed demon it ain't. If you have a PostScript printer connected directly to your computer (not to a network), you can make it print faster by sending the header code to the printer only once rather than at the beginning of every job.

Here's how: Make sure the printer is turned on. In Windows 3.*x*, open Control Panel and double-click *Printers*. Select your PostScript printer in the list of Installed Printers, and click *Setup*. Next click *Options*. In the Options dialog box, click *Send Header*. In the Send Header dialog box, confirm that *Printer* is selected, and then click *Send Now*. Uncheck *Send Header with Each Job*, click *OK* twice, then click *Close*.

In Windows 95, choose *Start•Settings•Printers*. Right-click your PostScript printer, and choose *Properties* (or select it and press **<Alt>-<Enter>**). Click the *PostScript* tab, and click the *Send Header Now* button (if it's dimmed, select *Download header with each print job*). Click *OK* to confirm. Make sure that the radio button 'Assume header is downloaded and retained' is selected. Then click *OK*.

The header will now be lodged in your printer, and each print job should come out a little faster. But any time you restart the printer, you'll have to repeat this process of sending the header to the printer. To automate that step, see the next tip.

DOWNLOAD POSTSCRIPT HEADER AUTOMATICALLY

HERE'S HOW TO automate the task of sending your PostScript header code to the printer. First you'll need to create a file on your hard drive that contains the header code.

In Windows 3.*x*, open the Send Header dialog box as described in the previous tip. Select *File*. Type a name and location for your header file (for example, **c:\windows\header.ps**). Click *Send Now*.

In Windows 95, open the Properties sheet for your PostScript printer, which must be set as the default printer. Click the *Details* tab and make a note of the current setting in the 'Print to the following port' drop-down list. Click that drop-down list, choose *FILE: (Creates a file on disk)*, and click the *Apply* button at the bottom of the dialog box. Then click the *PostScript* tab, select *Download header with each print job*, click *Send Header Now*, and click *OK* to confirm.

In the Print to File dialog box that appears, select a folder for your header file and type a name for it (such as **header.ps**) and click *OK*. Back in the PostScript Properties dialog box, make sure the radio button 'Assume header is downloaded and retained' is selected. Then click the *Details* tab, click the *Print to the following port* drop-down list, and set your printer back to its original port. Click *OK* to close the Printers window.

Now the header code that the printer needs is on your hard drive. You'll have to send the code to your printer each time you turn it on. To automate that process in Win 3.*x* and 95, open a DOS window and type **copy /bc:\windows\header.pslpt1:** where *c:\windows\header.ps* is the name of your header file and *lpt1:* is the port your printer is connected to. If you start your printer and computer only once a day, just add the line to your autoexec.bat file. Don't forget to turn on your printer first so it will be ready when autoexec.bat sends the file.

SEND IT WHERE YOU WANT IT

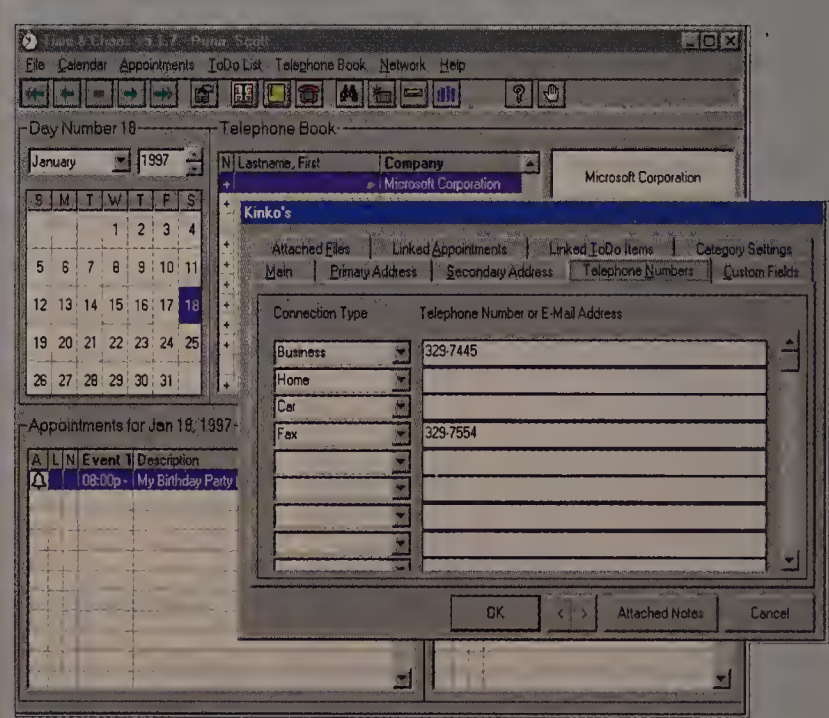
RIGHT-CLICK ON any file in Windows 95, and one of your options will be Send To. This menu is a boon—you can load it up with Shortcuts to oft-used folders, network drives, batch files, printers, file viewers, and more. (See "The Absolutely Ultimate Windows 95 Send To Tip" in this month's *Answer Line* to learn how to add items to the Send To menu.) But after adding a dozen or so goodies, things start getting cluttered. Here are some tips for organizing your Send To menu.

First, figure out logical groupings for the items in your Send To menu. Clustering similar items can help you find things faster when push comes to crunch. To rename Send To items as suggested ▶

WINDOWS TOOLBOX

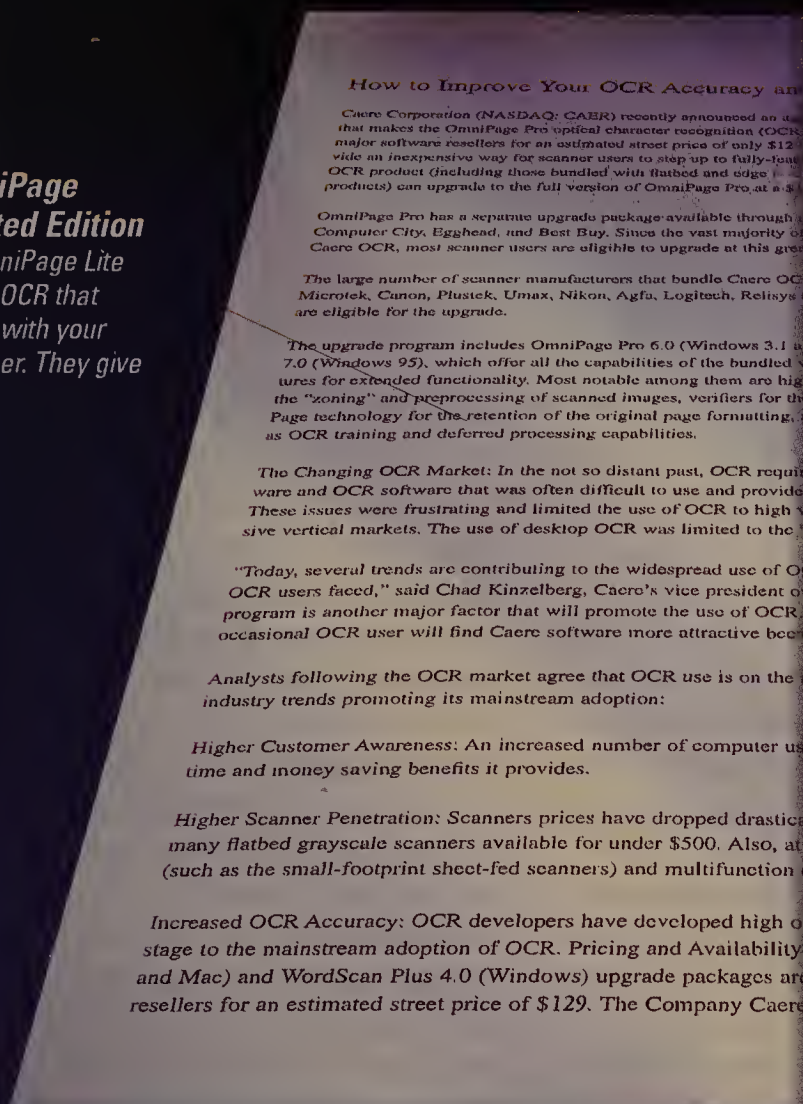
Try a Slim PIM

THE VENERABLE SHAREWARE personal information manager, Time & Chaos, is now available in a 32-bit version for Windows 95 and Windows NT. The program retains its clean-and-simple approach to appointment and contact management. Registration is $45. Available as Chaos32x.exe on PC World Online. Contact iSBiSTER International at 214/495-6724, sales@isbister.com, or http://www.isbister.com.



Upgrade to OmniPage Pro and get the recognition you deserve.

OmniPage Limited Edition *or OmniPage Lite is the OCR that came with your scanner. They give*



How to Improve Your OCR Accuracy an

Caere Corporation (NASDAQ: CAER) recently announced an u
that makes the OmniPage Pro optical character recognition (OCR)
major software resellers for an estimated street price of only $12
vide an inexpensive way for scanner users to step up to fully-fea
OCR product (including those bundled with flatbed and edge
products) can upgrade to the full version of OmniPage Pro at a

OmniPage Pro has a separate upgrade package available through
Computer City, Egghead, and Best Buy. Since the vast majority of
Caere OCR, most scanner users are eligible to upgrade at this gre

The large number of scanner manufacturers that bundle Caere OC
Microtek, Canon, Plustek, Umax, Nikon, Agfa, Logitech, Relisys a
are eligible for the upgrade.

The upgrade program includes OmniPage Pro 6.0 (Windows 3.1 a
7.0 (Windows 95), which offer all the capabilities of the bundled v
tures for extended functionality. Most notable among them are hig
the "zoning" and preprocessing of scanned images, verifiers for the
Page technology for the retention of the original page formatting,
as OCR training and deferred processing capabilities.

The Changing OCR Market: In the not so distant past, OCR require
ware and OCR software that was often difficult to use and provided
These issues were frustrating and limited the use of OCR to high v
sive vertical markets. The use of desktop OCR was limited to the

"Today, several trends are contributing to the widespread use of O
OCR users faced," said Chad Kinzelberg, Caere's vice president o
program is another major factor that will promote the use of OCR.
occasional OCR user will find Caere software more attractive bec

Analysts following the OCR market agree that OCR use is on the
industry trends promoting its mainstream adoption:

Higher Customer Awareness: An increased number of computer us
time and money saving benefits it provides.

Higher Scanner Penetration: Scanners prices have dropped drastical
many flatbed grayscale scanners available for under $500. Also, att
(such as the small-footprint sheet-fed scanners) and multifunction

Increased OCR Accuracy: OCR developers have developed high o
stage to the mainstream adoption of OCR. Pricing and Availability
and Mac) and WordScan Plus 4.0 (Windows) upgrade packages are
resellers for an estimated street price of $129. The Company Caere

ove Your OCR
l Save Big $$$

scanners are being used
er Recognition (OCR)

CR Market:
past, OCR required
n hardware and OCR
ten difficult to use
an satisfactory results.
ustrating and limited
gh volume applications
rtical markets. The use
limited to the "early

s are contributing to
of OCR that overcome
sers faced," said Chad
ice president of market-
le program is another
l promote the use of
ce point, even the occa-
find Caere software
use it is so cost

e OCR market agree
e rise and have identi-
trends promoting its

r Awareness:
r of computer users
d the time and money
vides.

Higher Scanner Penetration:
Scanners prices have dropped drastically in the last few years with many flatbed grayscale scanners available for under $500. Also, attractive, new scanner form factors (such as the small-footprint sheet-fed scanners) and multifunction devices have entered the market.

Low cost scanners entering the market have helped push OCR use to a new level

Increased OCR Accuracy:
OCR developers have developed high accuracy OCR technology for increased output. The greatest improvement has been made on degraded and hard to read documents.

Pricing and Availability
OmniPage Pro 7.0 (Windows and Mac) and WordScan Plus 4.0 (Windows) upgrade packages are immediately available at major resellers for an estimated street price of $129.

The Company:
Caere Corporation, with U.S. headquarters in Los Gatos, Calif. and European headquarters, Caere GmbH., in Munich Germany, is a leader in OCR technology and desktop document management products. Caere has recently expanded its product line of OCR

continued on next page

OmniPage Pro *gives you almost twice the OCR accuracy with the same ease-of-use as OmniPage Limited Edition.*

OmniPage Pro *keeps text in its original format and layout, including graphics.*

OmniPage Pro *even outputs to HTML.*

OmniPage Limited Edition

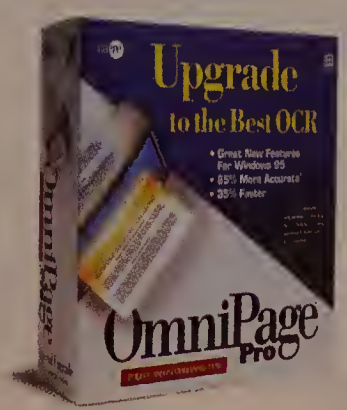
OmniPage Pro

Upgrade now to faster, more accurate OCR.

Sure, the OmniPage Limited Edition OCR that came with your scanner is good. In fact, that's why scanner makers like HP, Microtek and Agfa chose it above all others.

But if you want greater accuracy, full-throttle speed and a ton of new time-saving features, then it's time you moved up to OmniPage Pro®.

OmniPage Pro employs a new, more powerful OCR engine to recognize poor copies and degraded faxes.



It integrates seamlessly with your favorite applications like Word, WordPerfect and more. It even guides you through the OCR process using its AutoOCR Toolbar. All with the simple push of a button.

What's more, you get the advantages of the world's most popular OCR software without learning an entirely new program. So make sure you're getting all the OCR power and accuracy you deserve. Call now to upgrade, or visit a local reseller.

caere®

www.caere.com

Key Feature Comparison	OmniPage Pro	OmniPage Limited Edition
Caere's fastest and most accurate OCR engine	✔	
AutoOCR Toolbar™ for easy, one-button OCR processing	✔	
OCR Wizard to guide you through the process	✔	
Integrates with most image editors like Photoshop	✔	
OCR from within your favorite applications	✔	✔
Retains original layout	✔	

SPECIAL UPGRADE

$129* CALL TODAY TO ORDER! **800-736-5735** extension 60

Available for Windows 95, Windows 3.1 and Windows NT.

MICROSOFT® WINDOWS™ COMPATIBLE

*Suggested price US $—subject to change. Valid in US & Canada only. Caere, the Caere logo and OmniPage Pro are registered trademarks and AutoOCR Toolbar is a trademark of Caere Corporation. © 1996. All other names are the property of their respective holders.

Circle 91 on reader service card

by the tips below, open the Windows\SendTo folder in the Windows Explorer, right-click each item, and select *Rename* from the pop-up menu before proceeding.

1. Force your Send To menu to accept the order and grouping you want by renaming each to begin with a number or single letter. The menu shows items in alphabetical order, so your icons will be rearranged according to these new names, with numbers appearing first.

2. You can force a grouping of Shortcuts by putting an unobtrusive character at the beginning of the names of the items that you want to appear together. Windows ignores the space and most punctuation characters when alphabetizing, but will sort certain extended characters before alphabetical characters.

Here are the special characters, listed in the order that Windows will use to alphabetize them. For each one, make sure <NumLock> is on and use the numeric keypad: **<Alt>-0160** (blank), **<Alt>-095** (underscore), **<Alt>-096** (a grave accent), **<Alt>-0168** (an umlaut or dieresis), **<Alt>-0145** (an open single quote), **<Alt>-0146** (a close single quote), **<Alt>-0172** (a hooked dash), **<Alt>-0183** (a dot).

For your final grouping, don't add a special character to the Shortcut name; Windows will put these Shortcuts at the bottom of the menu. For an example of the result, see **FIGURE 1**.

3. Most application menus (and the right-click menu) use divider lines to separate groups of commands. To get similar divider lines, first create a dummy Shortcut for each line: Right-click and drag any old readme or other file into the SendTo folder and choose *Create Shortcut(s) Here*. Then right-click each dummy Shortcut, select Rename from the pop-up menu, and enter about a dozen underscore characters to create the divider line. Use the technique in Tip 2 to get the lines to appear in the proper order between groups of Shortcuts.

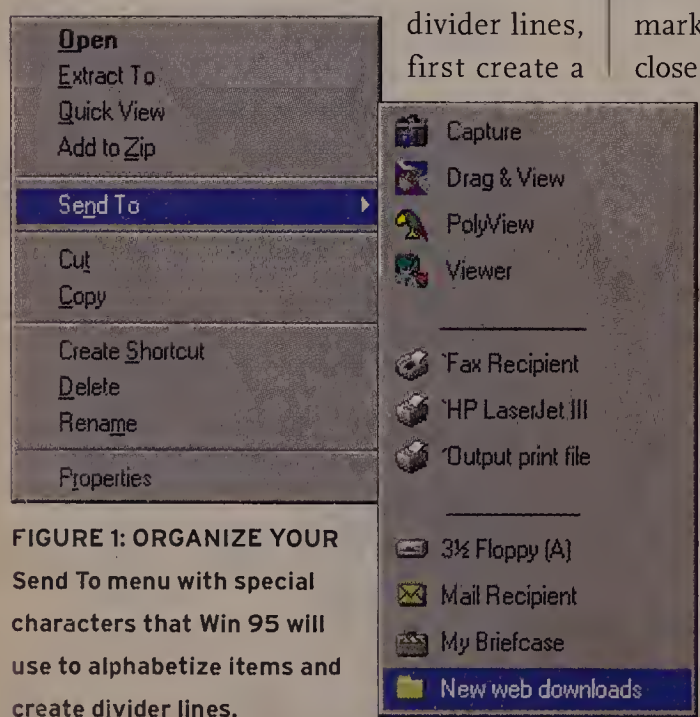


FIGURE 1: ORGANIZE YOUR Send To menu with special characters that Win 95 will use to alphabetize items and create divider lines.

For the best effect, assign a custom blank icon to these dummy Shortcuts. Windows doesn't come with blank icons, so you'll need an icon editor, which you can easily find at shareware sites on the World Wide Web.

If you have the Microsoft Internet Explorer, you'll find a blank mini-icon (the kind that appears in menus) in the iexplorer.exe file. To change the icon, right-click a dummy Shortcut, and choose *Properties*. Click the *Shortcut* tab, and click *Change Icon*. Type the path to your custom icon, and click *OK*. With Internet Explorer, type the path to iexplorer.exe, or click *Browse* and locate and select iexplorer.exe and click *OK*. Select the seventh icon (a document with a magnifying glass) or the eighth (a document with a question mark), and click *OK*. Click *OK* again to close the Shortcut's properties sheet.

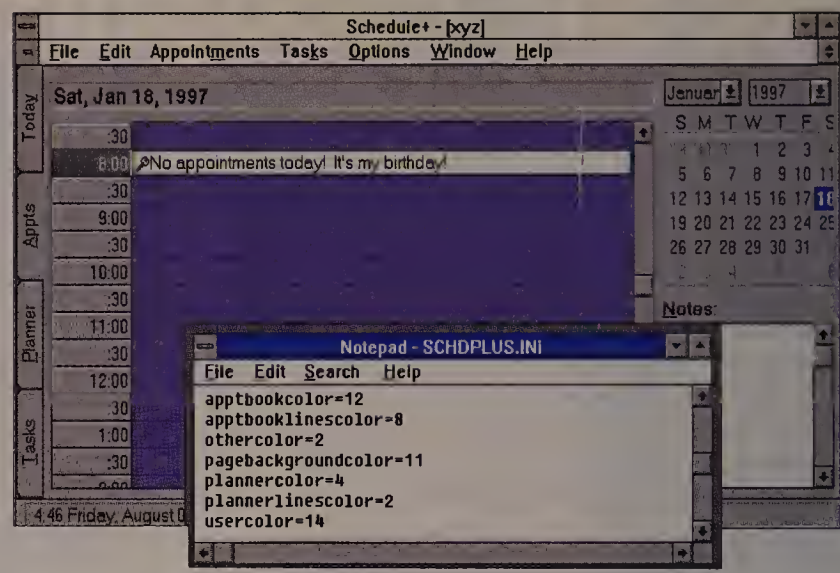


FIGURE 2: YOU CAN ADD MORE COLOR to Schedule+ for Windows for Workgroups 3.11 by editing the schdplus.ini file.

WASH AWAY THE GRAY IN SCHEDULE+

THE VERSION of Schedule+ that is included with Windows for Workgroups 3.11 has a default color scheme that may look like your laundry—shades of gray and pastel yellow. You can replace that palette with one of your own making.

Start Schedule+ and choose *Options•Display*. Using the drop-down lists, select colors for the Appointment Book and Planner backgrounds plus the Page background (the area surrounding the active tab). You can set a custom color to designate yourself and others in the Planner grid. When you're done, click *OK*.

Still not satisfied? By editing the schdplus.ini file in your Windows directory, you can also customize the color of the horizontal lines in the Appointment Book and the grid lines in the Planner.

In File Manager or Program Manager, choose *File•Run*, type **schdplus.ini** and then press **<Enter>** to open this settings file in a text editor. Under the [Microsoft Schedule+] heading, but above the next bracketed heading, add one line that reads **ApptBookLinesColor=1** and another that reads **PlannerLinesColor=1** (note that capitalization is not important). Change the 1 in each of the lines to any number from 1 to 17, as in **FIGURE 2**. These numbers correspond, in order, to the hues in the drop-down lists in the Display dialog box.

To make the grid and horizontal lines invisible (or nearly so), choose a number that corresponds to that window's background color. Then save the file. You don't need to restart Schedule+ to see your changes take effect; just choose *Options•Display* and press **<Enter>**.

START APPLICATIONS AS MINIMIZED ICONS

SOMETIMES YOU don't want to use a program the minute you start it. If you have several programs you plan to use soon, it might be more efficient to start them all at once.

The easiest way to do this is to have the applications start as minimized icons on the desktop (Windows 3.*x*) or the Taskbar (Win 95). Then you can switch to each application when you're ready.

Here's how to make an application start minimized—this is particularly useful for some applications in your StartUp group. Locate the Shortcut or Program Manager icon for the application. To set its properties, press **<Alt>** as you double-click it. In Windows 3.*x*, check *Run Minimized* and click *OK*. In Windows 95, click the *Shortcut* tab and choose *Minimized* from the *Run* drop-down list. Then click *OK*.

If you want an icon to behave this way only on demand, do this instead: In Windows 3.*x*, press **<Shift>** as you double-click an icon in Program Manager. You can do the same thing to an .exe file in File Manager, but you're better off selecting the file name before you <Shift>-double-click it to avoid selecting multiple files.

This feature doesn't work exactly the same in Windows 95; if you <Shift>-double-click a Shortcut or an .exe file in Explorer, the application won't start minimized, but it will start without putting its window in front of the Explorer window. This allows you to stay in Explorer and <Shift>-double-click one icon after another to start multiple applications in quick succession. But this trick doesn't work with every program.

WINDOWS NT BOOTING TIPS

WHEN you install Windows NT, it politely gives you the option of choosing between it and the previous operating system on your PC. Every time you start your computer, a boot menu lets you choose which operating system to use; if you don't press any key, Windows NT starts after 30 seconds.

But what if you don't want the system to default to NT? Or what if you don't want to wait 30 seconds for the NT default to start? Fortunately, you can customize attributes of the NT boot menu.

Here's what to do: Start up Windows NT and double-click the *Control Panel* icon in Program Manager. In Control Panel, double-click the *System* icon. From the *Startup* drop-down list, choose the operating system you want to use as the default. In the 'Show list for' area, type the number of seconds you want the boot options to appear before your computer runs the OS you set as the default. Then click *OK*.

Still not good enough? You can edit the boot.ini file in your root directory to customize the wording of the options. In File Manager, choose *View•By File Type*, check *Show Hidden/System Files*, and click *OK*. Select the boot.ini file and press **<Alt>-<Enter>** to display its properties. Uncheck *Read Only*, *Hidden*, and *System*, and click *OK*. Double-click *boot.ini* to open it in an editor. Under [operating systems] you should see one line for each of the boot options you get when you start your computer; the text that appears on screen is to the right of the equal sign (=) in quotation marks. Just edit the text between the quotation marks to customize the prompt—for example, 'Joe's Wonderful World of Widgets'. Don't change the material to the left of the equal sign.

To change the order of items in the boot menu, rearrange the lines under [operating systems] to conform to the order you want. Save the file and exit your text editor. The next time you reboot, you'll see your custom option names in the order you specified.

Find files from this article and additional tips at http://www.pcworld.com/hereshow.html. Windows Tips *welcomes your tips and questions and pays $50 for published items. Contributing editor Scott Dunn is a principal author of the* PC Bible, *2nd Edition (Peachpit Press, 1995, 800/283-9444). See page 12 for contact information.* ■

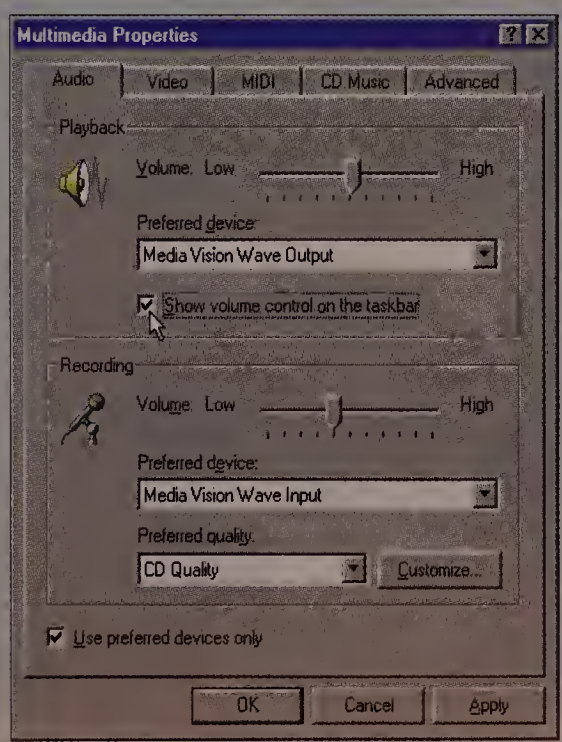
SEE THE SOUND

MY WIFE AND I use custom desktops when running Windows 95 on the same machine. Her desktop shows the speaker icon at the right end of the Taskbar, but mine does not. How can I display the speaker icon on my Taskbar?

Bob Taylor, Internet

CLICKING THE speaker icon to change your system's volume is a handy way to pump up or tone down Windows sound on the fly.

To get this feature, choose *Start•Settings•Control Panel*. Double-click the *Multimedia* icon, and make sure the *Audio* tab is selected. Check the *Show volume control on the taskbar* check box, as in the figure at left, and click *OK*. The speaker icon will appear on the Taskbar immediately.



CLICK TO CONTROL VOLUME after you check that option in the Multimedia Properties sheet.

TO DESTROY OR MSCREATE

AFTER INSTALLING a Microsoft Windows 95 program, there always seem to be a lot of copies of the file mscreate.dir scattered throughout its folders. Are these just temporary setup files that I can delete?

Tyler Bittner, America Online

THESE FILES ARE CREATED by the setup program of a number of Windows 95 applications as a way of keeping track of which folders were created by Setup and which weren't.

If you later run Setup to add or remove parts or all of an application, Setup uses the presence of mscreate.dir to decide whether it's safe to delete an empty folder. If Setup can't find mscreate.dir in a folder it created, Setup won't delete the folder even though it may be empty.

So what should you do? Deleting these normally hidden files won't buy you much disk space—they're zero-byte files, after all. And it will end up handing you the chore of deleting empty, unused folders after you remove software from your system. In this case, you're better off leaving well enough alone.

New PC Partners

More capability, more versatility, more mobility

View the picture the moment you take it.
Then upload it to a PC and the world can see.

Shoot from any angle
The lens rotates a full 270 degrees
so you can set it to the angle you want.

LCD DIGITAL CAMERA

QV-100

You can perform unlimited graphic wonders with the Casio QV-100 Digital Camera.
It conveniently stores up to 192 images at standard resolution or 64 fine resolution VGA images.

Shoot and view
Take a picture and view it instantly on the brilliant 1.8" color viewfinder.
If you're not satisfied with the image, simply reshoot it!

Connect to a TV for big-screen viewing
Enjoy viewing your images with the whole family, or leave a lasting impression at business presentations.

Instant prints of digital images
Connect to the QG-100 Color Printer and produce color prints of images as soon as you shoot them. You can print images on 18, 36 or 46mm stickers and attach them to cards, personal belongings, etc.

Upload images to a PC
To create effective reports, proposals, or other documents, simply upload the images to your PC.

- Creatively retouch images or generate special effects using the included Adobe® PhotoDeluxe™ and ISR ixlaPhoto™ software.
- Save images on hard disk or floppies as TIFF, BMP, PICT or JPEG files.
- You can transmit images anywhere in the world by e-mail or incorporate them into a Web page by using the included Microsoft® Internet Explorer software.

- Microsoft, Windows, the Windows Logo and the Microsoft Internet Explorer Logo are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.
- Adobe is a registered trademark of Adobe Systems Incorporated.
- Adobe PhotoDeluxe is a trademark of Adobe Systems Incorporated.
- IXLA and ixlaPhoto are trademarks of ISR Group Limited.

Includes Microsoft® Internet Explorer

PhotoDeluxe

ixlaphoto

rom CASIO

CASSIOPEIA is a handheld PC developed together with Microsoft® and designed for Windows®95.

Designed for Microsoft® Windows® CE

HANDHELD PC

CASSIOPEIA

A-10 2MB RAM A-11 4MB RAM

The new Casio CASSIOPEIA handheld PC is changing the way the world thinks of mobile data processing. Quick and easy data exchange with any PC running Windows® 95 means you can now take information anywhere.

Automatic data links with a Windows® 95 desktop PC
Simply attach the CASSIOPEIA to the optional large/mini dock connected to a Windows® 95 desktop PC for easy linking and data synchronization.

Built-in Microsoft® Pocket Word/Microsoft® Pocket Excel
The CASSIOPEIA comes with the streamlined versions of two of the world's most popular PC applications, Microsoft® Word and Microsoft® Excel.

Powerful New Microsoft® Windows® CE Operating System
Developed for handheld PCs by Microsoft®, the open platform architecture of this operating system allows you to run almost any Windows® CE application.

Internet access on the go
Use Microsoft® Pocket Mail to send and receive e-mail anywhere you are. Use Microsoft® Pocket Internet Explorer to surf the Net.
*Internet access requires a modem and the subscription to an Internet provider.

Other features and functions include:
- Backlit display makes for easy viewing, even in total darkness.
- Business functions include Contacts, Calendar, Tasks, World Clock and Calculator.
- Simple operations with keyboard and stylus.

*All displays shown in this advertisement are photographic facsimiles.

CASIO®
GIVES YOU VISION

© 1996 CASIO Inc. 570 Mt. Pleasant Avenue, Dover, NJ 07801
TEL 201-361-5400 FAX 201-361-3819
http://www.casio.com/

For the stores nearest you, call 1-800-327-1266 now.

Get centered ◆ Re-enter standard text via abbreviations ◆ Slow screen scroll

Centering Text Vertically in Any Word Processor

OKAY, YOU'VE WRITTEN a great letter—but it's just a few paragraphs and looks really ugly on the page. You need to center it vertically to make it look good. You could hit <Enter> a few times, but there's a better way. All current word processors let you center text on a page before or after you create the document:

Word 6 and 7 Select *File•Page Setup*, then click the *Layout* tab. Click the *Vertical Alignment* drop-down list and choose *Center*. Click *OK* to finish the job.

WordPerfect 6.1 and 7 Select *Format•Page•Center*. In the *Center Page(s)* dialog box, choose one of the available options (*Current page* works for one-page documents), then click *OK*.

Word Pro 96 Use the Page Properties InfoBox to center pages vertically. Right-click the page, then select *Page Properties* from the pop-up menu. Click the *Misc* tab in the InfoBox, then click the center button in the Vertical Alignment group of buttons, as in **FIGURE 1**.

AUTOMATE REPETITIVE TYPING

HOW MANY TIMES a day do you type your name, the name of your company, or some other standard text? Most of us just repeat the work again and again without thinking. Today's word processors can enter oft-used text automatically whenever you type an abbreviation. This feature is built into the programs, but few users take advantage of it. Here's how to set it up in your favorite word processor:

Word 6 and 7 Type the recurring phrase into a blank document and highlight it, or highlight any block of text in an existing document. Select *Tools•AutoCorrect*. The selected phrase will appear in the 'With' box of the AutoCorrect dialog box, and the cursor will be in the 'Replace' box. In the 'Replace' box, type an abbreviation for your text, making sure it's not a word you might type for another purpose, then click *Add* and *OK*. That's it. From then on just type the abbreviation, press **<Space>**, and Word will insert the entire phrase.

WordPerfect 6.1 and 7 Type your phrase into a blank document and highlight it, or highlight the phrase in existing text. Select *Tools•QuickCorrect*. The selected text will appear in the 'With' box of the QuickCorrect dialog box. Type an abbreviation in the 'Replace' box, then select *Add Entry* and *Close* to store it. To insert the phrase, type the abbreviation, then press **<Enter>**.

Word Pro 96 In this program you have to enter the text in a dialog box instead of highlighting it in the document. Select *Edit•SmartCorrect*. In the SmartCorrect dialog box, click the *Add Entry* button, and in the resulting dialog box, type your abbreviation in the 'SmartCorrect entry' box. Press **<Tab>**, then type the complete phrase into the 'Replacement text' box. Click *OK* twice to finish. To insert the phrase later in your documents, type the abbreviation, then press **<Space>**.

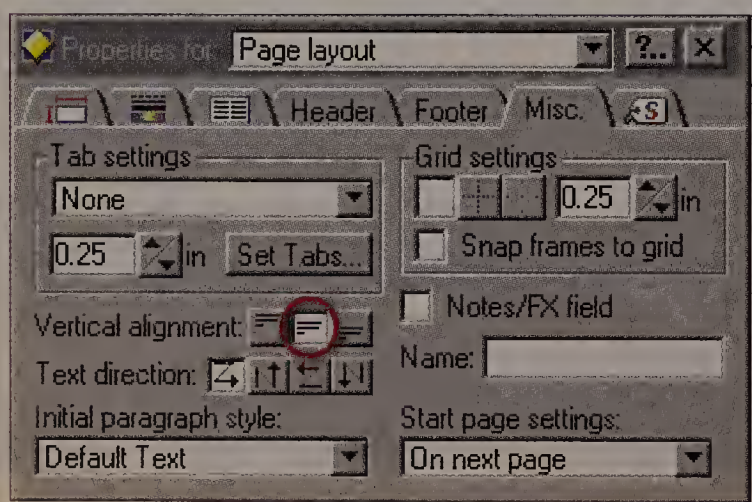
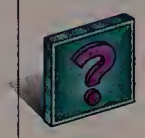


FIGURE 1: VERTICALLY CENTER A PAGE in WordPro 96 by using the Page Layout InfoBox (see circled button).

DRAG-FREE TEXT SELECTION IN ALL WORD PROCESSORS



WHENEVER I TRY to click and drag to select a large block of text that extends past the bottom of the screen, Word 7 scrolls so fast that I end up selecting far more text than I want. Is there a less frustrating way to do large selections?

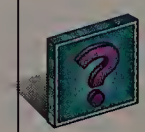
Mario Cormier, Internet

I GET A LOT of questions about this. In Word 6 and 7, you can slow scrolling a bit by dragging the mouse just below the document window, rather than further down the screen. That trick doesn't help on fast Pentium machines, though; Word still scrolls too fast for comfort.

Fortunately, there's a much better way to handle selecting large blocks of text; the technique works in every word processor because it's a basic Windows function.

Click where you want the text selection to begin. Use the scroll bar instead of the cursor keys to move down in the document until you can see the end of the desired selection. Hold down the **<Shift>** key, then click at the end of the text you want to highlight. That's all you have to do: You won't be blinded by Word's scrolling speed again.

STORING NEW STYLES IN WORDPERFECT 6.1 AND 7

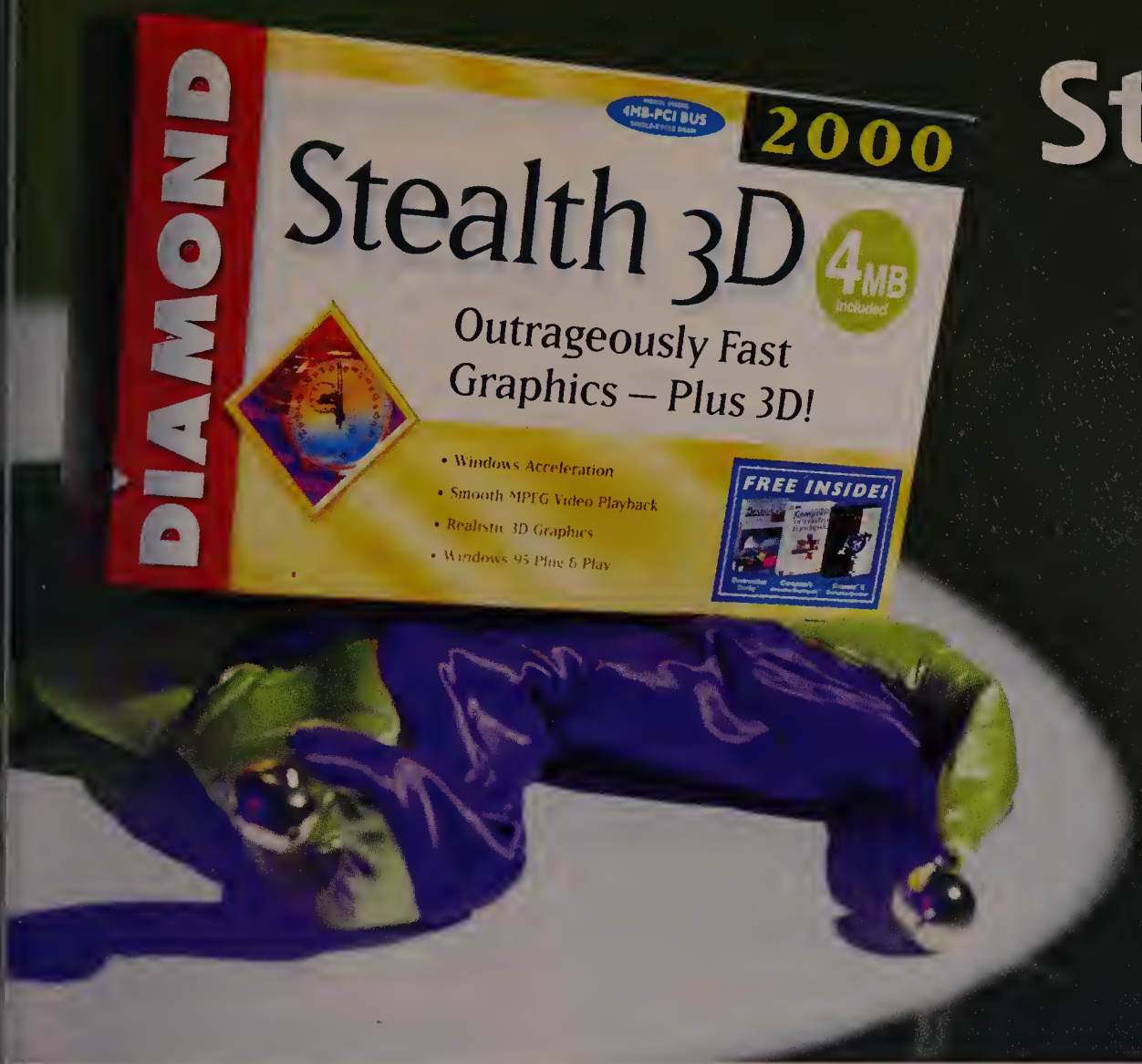


I OFTEN CREATE new styles in WordPerfect 7 while I'm working on a document. I expect a newly created style to be available to me in other documents, but it doesn't show up in the Style List dialog box. What am I doing wrong?

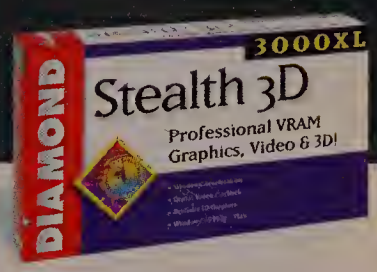
Alice Baxter, Boston

BY DEFAULT, WordPerfect 6.1 and 7 store all styles that you create in the current document. Storing a style in a template so that you can use it in other documents takes an extra step.

Here's what you have to do. Create your new styles as you do now—by selecting *Format•Styles*, clicking the *Create* button or the *QuickStyle* button in the Style List dialog box, and then filling in the Styles Editor dialog box. Back in the Style List dialog box, click the *Options* button and select *Copy* from the drop-down ▶



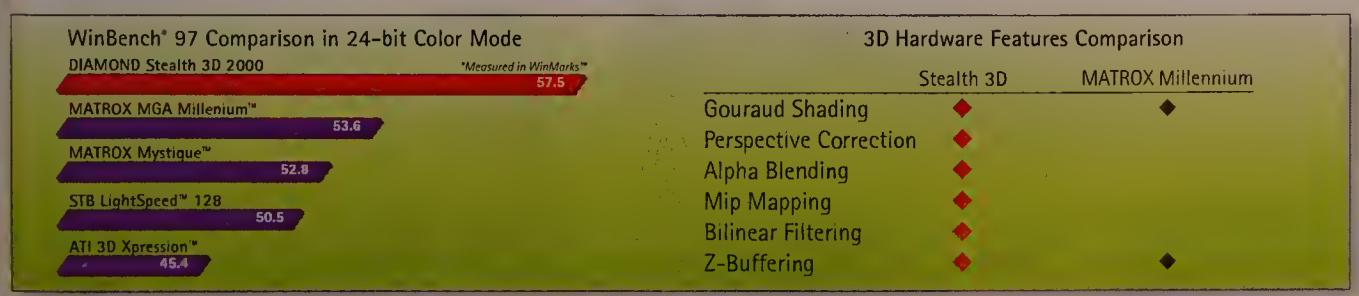
Stealth is flat out faster.



Outrageously fast 2D graphics–plus 3D.

Prepare to push your PC into the next dimension with the Stealth 3D family from Diamond. The first in a superior line of affordable Plug and Play 3D accelerators with Outrageously Fast 2D graphics, vivid 3D animation and striking MPEG video playback—from the market leader in high-performance graphics subsystems. The Stealth 3D 2000 and 3000 dramatically improve graphic-intensive business applications, action games and overall system performance through greater resolution, millions of colors and extreme speeds. ◆ The Stealth 3D family accelerates Windows® 95, Windows® NT 3.51 and 4.0, Windows® 3.1 and DOS operating systems and is compatible with 3D applications for Windows 95 using Microsoft's® DirectX APIs. The Stealth 3D 2000XL* comes bundled with Interplay's Descent™ II**, Compton's Interactive Encyclopedia™ 1996, Sony's Destruction Derby™ and Microsoft's® Internet Explorer. The Stealth 3D 3000, with support of up to 4MB VRAM, delivers enhanced resolutions and colors, OpenGL support and higher refresh rates. The Stealth 3D 3000XL* comes bundled with Interplay's Descent™ II; Compton's Interactive Encyclopedia™ 1996; Asymetrix's 3D F/X™ and Digital Video Producer™ and Microsoft's® Internet Explorer. ◆ So, if you're ready for the fastest graphics available, contact Diamond at http://www.diamondmm.com or call us at 1-800-4-MULTIMEDIA, and get everything you need to launch into the future of 3D graphics acceleration today.

	Stealth 3D 2000XL	Stealth 3D 3000XL
Memory	DRAM	VRAM
RAMDAC	135 MHz	220 MHz
Max Memory	4MB	4MB
Max Resolution	1280 x 1024	1600 x 1200
Bundled Software*	• Descent II • Compton's Interactive Encyclopedia 1996 • Destruction Derby • MS® Internet Explorer	• Descent II • Compton's Interactive Encyclopedia 1996 • 3D F/X • Digital Video Producer • MS® Internet Explorer



3D Hardware Features Comparison

	Stealth 3D	MATROX Millennium
Gouraud Shading	◆	◆
Perspective Correction	◆	
Alpha Blending	◆	
Mip Mapping	◆	
Bilinear Filtering	◆	
Z-Buffering	◆	◆

DIAMOND Stealth 3D ACCELERATED

S3D On-board

Look for these logos on a new class of applications designed to take advantage of Stealth 3D graphics.

PC MAGAZINE EDITORS' CHOICE

December 3, 1996

DIAMOND MULTIMEDIA
VISUAL SYSTEMS DIVISION

http://www.diamondmm.com

©1995 Diamond Multimedia Systems, Inc., 2880 Junction Avenue, San Jose, CA 95134-1922. Windows® is a registered trademark of Microsoft Corporation. All other trademarks and registered trademarks are the property of their respective holders. *Software bundles included with XL retail version only. **Descent II Destination QuartZone is a trademark of Interplay. Winmark 97 and Winstone 97 tests performed at 800 x 600 resolution in 24 bit color by ZD Labs in the December 3, 1996 issue of PC Magazine.

Circle 60 on reader service card

menu. Select *Template* in the Styles Copy dialog box, then click *OK* and *Close*.

If you are going to create multiple styles, though, select *Options•Setup* in the Style List dialog box before creating the first style. Select *Default Template* in the 'Default location' frame of the Style Setup dialog box, then click *OK*.

Once you do this, all styles that you create during that session will automatically end up in the template. Unfortunately, you will find that this default setting is lost whenever you exit WordPerfect.

Word Processing *welcomes your tips and questions and pays $50 for published items. See page 12 for contact information. George Campbell is a* PC World *contributing editor and was a collaborator on* The PC Bible *(Peachpit Press, 1995, 800/283-9444).* ■

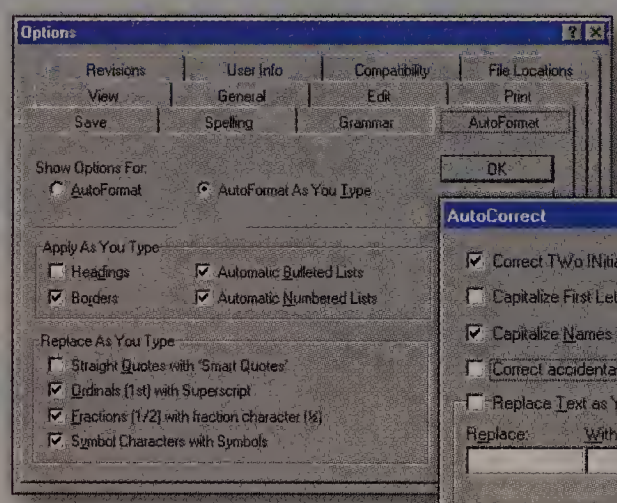
STEP BY STEP

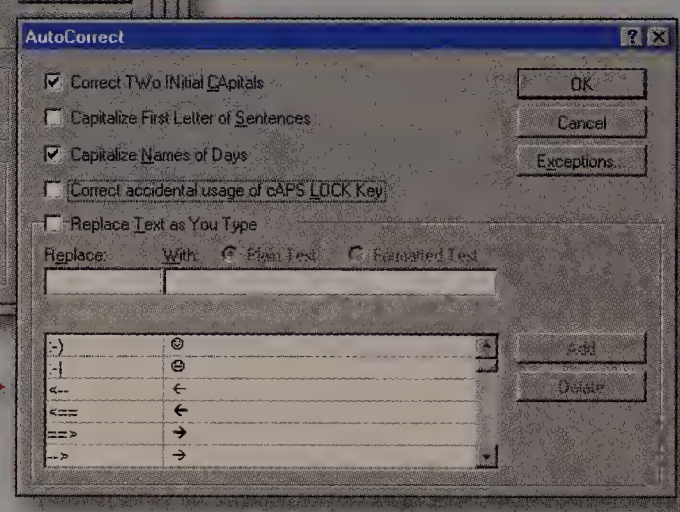
Take Your Word Processor Off Autopilot So It Will Do Only What You Want

THE CURRENT CROP of word processors can do a lot of work for you, creating bulleted lists automatically, correcting common misspellings, inserting special characters, and so on. But you may want to turn these features off for some projects, or perhaps they just don't suit your style. Here's how to shut down all or part of this automation in the three major word processors.

Word 6 and 7

To control Word's AutoFormat functions, select *Tools•Options*, then click the *AutoFormat* tab. In Word 7, you then select *AutoFormat As You Type*. In both releases, select the features you want to enable or disable, then click *OK*.

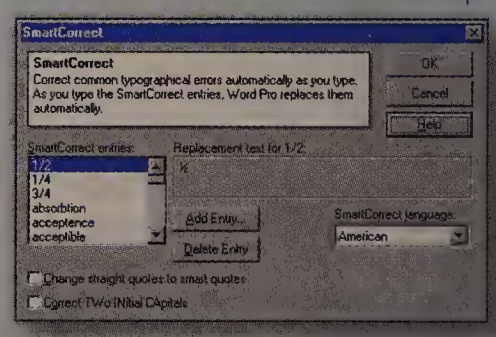




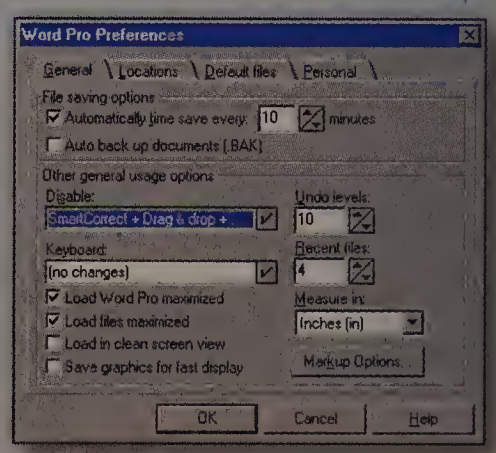
To control Word's AutoCorrect functions, select *Tools•AutoCorrect*, select the features you want to enable or disable, then click *OK*.

Word Pro 96

To control Word Pro's automatic correction of spelling and punctuation errors and the use of true quotation marks, select *Edit•SmartCorrect*. In the SmartCorrect dialog box, select the features you want to enable or disable, then click *OK*.

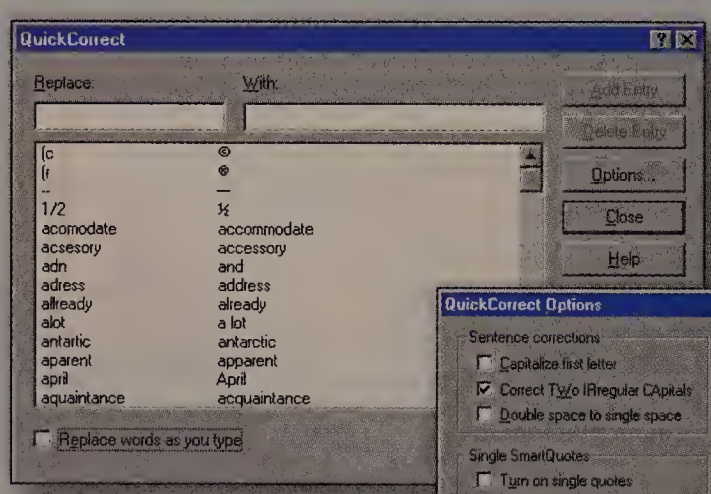


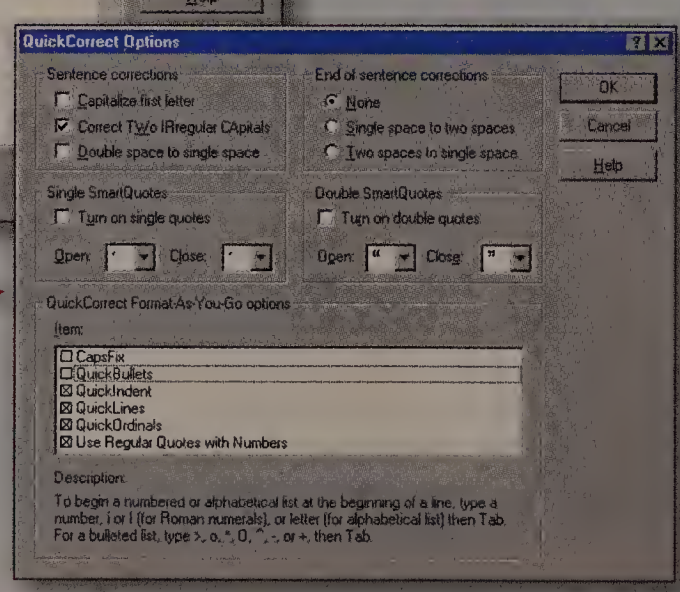
To disable SmartCorrect altogether, select *File•User Setup•Word Pro Preferences*. In the resulting dialog box, make sure the *General* tab is selected, click the Disable drop-down list and click *SmartCorrect*. (If it is checked, it is disabled.) Click *OK*.



WordPerfect 6.1 and 7

To control WordPerfect's automatic spelling corrections, select *Tools•QuickCorrect*. In the QuickCorrect dialog box, select the *Replace Words as You Type* check box to enable or disable this feature.





To control WordPerfect features such as true quotation marks and automatic bulleted and numbered lists, click the *Options* button in the QuickCorrect dialog box. In the resulting dialog box, select the features you want to enable or disable, then click *OK* and *Close*.

Bingo! Random Numbers

I'VE RECEIVED MANY inquiries lately about generating random numbers, but I held off answering until Nilo Bonsol of Torrance, California, e-mailed asking how to generate bingo cards with Excel. How could I resist? A bingo card incorporates 24 random numbers between 1 and 100, with no repetitions.

The procedure I describe here, which works with minor modifications in any spreadsheet, shows a basic approach to generating such sets, and for referencing them in worksheet layouts.

Starting with an empty workbook, select *Insert•Worksheet* to create two pages. Then double-click the first sheet tab, and enter the name **RandomList**; name the second sheet **BingoCard**. Select the sheet *RandomList*, enter **1** in cell A1, and **2** in cell A2. Select A1:A2, and drag the AutoFill handle (see figure above) to cell A100.

You now have an ordered set of 100 integers. In cell B1, enter the formula **=rand()**, and use the same AutoFill trick to copy it to B2:B100. At this point, you can randomize your list of integers: Select a cell in column B, and click the *Sort Ascending* button on the Standard toolbar a few times.

Now for the card. Select the *BingoCard* sheet and enter the labels and numbers shown in B1:F2 and in A3:A7 of the next figure. In cell B3, enter the formula **=INDEX(RandomList!$A$1:$A$100,B$1+$A3)**, and copy it to B3:F7. This formula uses the numbers in row 1 and column A to create a series of index values that take the first 25 numbers from the list on the RandomList sheet. Select cell D5 and make sure your keyboard's NumLock is off. Press and hold **<Alt>** and type **0182** on the keypad. Release **<Alt>** and press **<Enter>**. You'll probably see a paragraph symbol; in the following steps, we'll reformat the cell so it displays a star.

Okay, let's dress up the bingo card. Select B2:F2, select *Format•Cells*, click the *Font* tab in the Format Cells dialog box, and select a large, fancy font (I chose the 36-point Footlight MT Light font). Click the *Patterns* tab in the same dialog box, select a light gray shade, and then click *OK*.

B	I	N	G	O
92	47	86	62	94
73	61	66	2	43
80	29	☆	99	42
36	27	14	3	28
79	87	39	63	18

Select B3:F7, select *Format•Cells*, click the *Font* tab, and select the 24-point Arial font to match the figure. To get the star in the middle of the bingo card, click cell D5, select *Format•Cells*, click the *Font* tab, and select the *Wingdings* font. Click the *Patterns* tab, and select a gray cell shade.

Select B2:F7, select *Format•Cells*, click the *Alignment* tab, and select *Center* for both the horizontal and vertical dimensions. Click the *Border* tab, click the third line in the Style section, then click *Left, Right, Top,* and *Bottom,* and click *OK*.

Finally, select *File•Page Setup*, click the *Margins* tab, and select *Horizontally* in the Center on Page section. Now click the *Sheet* tab in the same dialog box, type **B2:F7** in the Print Area box, and click *OK*.

To print your bingo cards, select the *RandomList* sheet, select a cell in column B, and click the *Sort Ascending* button. Then select the *BingoCard* sheet and check the numbers. If you see the characters '##' in one or more of the cells, go back to the *RandomList* sheet and click the *Sort Ascending* button again. When everything is okay, select *File•Print*. When it's time for a game, simply re-sort the list of random numbers and call out the ones that come to the surface.

CALCULATING JULIAN DATES, REDUX

Several readers have pointed out that there's a simpler way to calculate a date's number within each year (where January 1 is day 1, September 1 is either day 244 or day 245, depending upon whether it's a leap year, and so on).

Instead of the complex formula I suggested in the September column, try this one, where the date you want to work with is in cell A1:

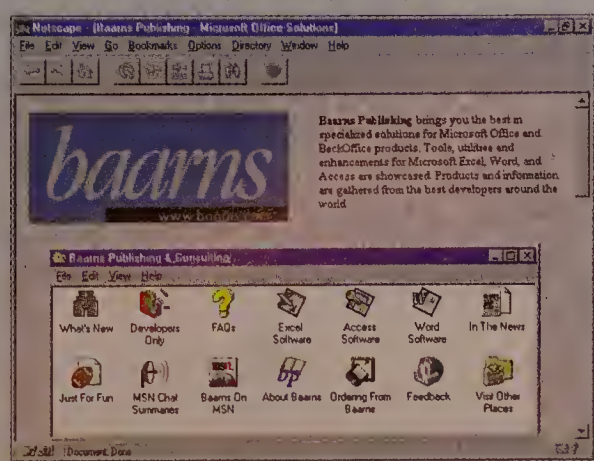
+a1-date(year(a1)-1,12,31)

Spreadsheet Tips welcomes your tips and questions and pays $50 for published items. See page 12 for contact information. Richard Scoville is PC World *contributing editor and a software training consultant based in Chapel Hill, North Carolina.* ■

S P R E A D S H E E T S T O O L B O X

Excelling on the World Wide Web

IF YOU'RE LOOKING for an Excel model but lack the time or inclination to put it together yourself, or if you just want to learn more about developing your own models, check out Baarns Publishing's Web site (http://www.baarns.com). Don Baarns, along with Eric Wells and Dan Williams of Microsoft, has done much to foster Excel as a serious development platform. Baarns' Web site features a host of models, some created by Baarns and his team, some by third-party vendors. A few are free, and most are under $50.



Some notable tools are Baarns' Statistical Process Control Charts ($29.95), a job cost estimator ($19.95), and a mortgage analysis package ($29.95). Once you have opened a file, select *Format•Sheet•Unhide* to make the macros and dialog boxes visible.

•Baarns Publishing 800/377-9235, 818/837-1441, 818/837-1445 (fax); http://www.baarns.com

Create Push-Button Menus

IT'S EASY TO CREATE a database menu form with push-button controls. You can start from scratch or copy a menu from a sample database and customize it. I often start with a blank form, change it a bit, then pirate some buttons from another menu. Next, I change the code attached to the buttons and call the form Menu—unimaginative but easy to identify.

These steps apply to Access. For other databases, visit PC World Online at http://www.pcworld.com/hereshow.html.

1. Create a new blank form: In the database window, select the *Forms* tab, then click the *New* button. In the New Form dialog box, leave *Design View* highlighted and click *OK*. You don't need to choose a table or a query for the form.

2. The grid area that appears represents the background of your menu. To resize the grid area, click and drag its lower right corner (see **STEP BY STEP**, below).

3. Change some of the form properties to make the form look more like a dialog box and less like a window for viewing records. Right-click the box to the left of the horizontal ruler, choose *Properties*, and select the *Format* tab. Set Scroll Bars to *Neither*, Record Selectors to *No*, and Navigation Buttons to *No*, as in the figure.

4. To change the background color of the form, leave the Properties box open and click the *Detail* bar on the form. Make sure the *Format* tab is selected, and click the *Back Color* line. Click the ... button that appears at the end of the line to open the Color dialog box. Select a shade, then click *OK*. Click the *Detail* bar again to see how your choice looks.

5. Before you start adding push buttons, click the *Label* tool in the toolbox, drag the mouse to create a box for the title, then enter a title in the box. If you decide that using an appropriate file name for the form is enough, select *File•Save* and enter a name like **Menu**.

You can add a graphic to a menu form. Click the *Image* button in the toolbox, drag the mouse to create a box for the image, then select a graphic from the Insert Picture dialog box. Depending on how your software was installed, you may find interesting pictures in the c:\msoffice\clipart directory or in c:\msoffice\access\bitmaps\dbwiz.

6. Click the *Command* button in the toolbox, and drag the mouse to create a push button on the form. If the Control Wizard button is depressed, you'll get help from the Command Button Wizard, which offers lots of options: actions for opening forms and reports, moving through records, and other common tasks. You can also show a text label or a picture on the button.

7. To copy a button you've already placed on the form, click the button and select *Edit•Duplicate*. Double-click the text on the new button to edit it or change its Caption property. If you copy a button, change its On Click property: In the Command Button dialog box, select the *Event* tab, click the ... button at the end of the line, and select *Macro Builder* in the Choose Builder dialog box. (It may be quicker to use the Command Button Wizard again.)

You can also copy macro buttons from one form to another. Both databases must include the macro that's attached to the command button being copied. Open the form that contains the button you want to copy, go into Design mode, select the button, and click the *Copy* button on the main toolbar. Go back to your menu form in Design mode, click the *Paste* button, then drag the copied button to wherever you want it. This trick works when you don't need to change the action that belongs to the Command button.

8. Select *File•Save*; name the form **Menu**.

9. To open the menu form automatically when you open the database, choose *Tools•Startup*, click the *Display Form* drop-down box, select *Menu*, and click *OK*. You can also use an autoexec macro to open the form.

Find files from this article and additional tips at http://www.pcworld.com/hereshow.html. Database Tips *welcomes your tips and questions and pays $50 for published items. See page 12 for contact information. Contributing Editor Celeste Robinson is the coauthor of* Mastering Paradox 7 for Windows 95 *(Sybex, 1996, 800/227-2346).* ■

STEP BY STEP

Add a Push-Button Menu to an Access Database

TOTAL POWER TO GO THE DISTANCE

VOYAGER PRO IV

intel inside PENTIUM PRO

$1949.00

VOYAGER PRO IV SYSTEMS

Intel Pentium® PRO 200MHz Chip w/MB

$ Call

Caliber's super mini-tower chassis allows you to use the ATX baseboard or AT baseboard interchangeably. It will also be compatible with future Intel® releases.

ATX form factor:

- All slots full length (3 PCI, 3 ISA, 1 Shared)
- Easy to upgrade CPU and Memory
- One fan for quieter system ; No cable for I/O
- Expandable double-High I/O back panel

ATX Chassis Rear Panel and Back Shield Removable I/O Port Indication

- **Intel Pentium® PRO 180MHz Chip w/MB**
- 16MB EDO RAM
- Advanced ATX Super Mini-tower Case/230 W UL
- Teac Floppy Drive 1.44 MB / 3.5"
- Matrox 3D Mystique Video Card (2MB SDRAM)
- Maxtor 1.3 GB EIDE Hard Drive
- Panasonic 8X CD-ROM Drive
- FAX Modem 33.6/28.8 w/Voice
- 16 Bit Sound Card
- 104 Key Enhanced Keyboard
- Logitech Mouseman Serial/PSII
- Microsoft Windows® 95
- CYBER CD PAK for Windows® 95

Matrox 3D Mystique Includes:
Mech Warrior™2
Destruction Derby™2
Scorched Planet™
Software MPEG Player
3D Web Browser

Free
- -1996 Grolier Encyclopedia
- -Al Unser Jr. Arcade Racing
- -The Complete Reference Library
- -Internet Online
- -Family Dictionary
- -The Chessmaster 4000 Turbo
- -Mavis Beacon Teaches Typing 3.0
- -The Animals! 2.0
- -U.S. Altas 5.0
- -World Atlas 5.0

- 40/40 W Speakers
- 3 Year Limited Warranty
- 15" .28 Dot Pitch Flat Screen Monitor
- 14" or 17" Monitor Optional
- Microsoft Windows® NT Optional

CALIBER®

CALIBER Computer Corp.
Phone: 510-353-1220
FAX: 510-354-2134
E-mail: caibercorp@aol.com
45800 Northport Loop West
Fremont, CA 94538

Circle 42 on reader service card

The price subject to change without notice.

The Intel Inside logo and Pentium Pro are registered trademarks of Intel Corp.

It Retrieves E-mail, Accesses The Internet,

And Connects You With Your PC.

Because Sometimes You've Just Got To Contact The Mothership.

COMPAQ

Has It Changed Your Life Yet?

Your PC is mission control. There's information on it. And you need it. Now. Introducing the Compaq PC companion. Finally you can access and exchange information from here, there and everywhere. It's capable of keeping you in constant communication with your PC while you bounce from meeting to meeting, coast to coast.* So send a few e-mails, explore the Internet, check your calendar, review that report. With seamless synchronization of data, you've got everything you need until re-entry. Over and out. For more information, visit us at www.compaq.com or call 1-800-945-3842.

distributed

access

PC Connectivity

Introducing the Compaq PC companion. It's truly compatible with your Windows-based PC and synchronizes your data. Finally, connection to your PC is absolutely seamless.

Microsoft® Windows® CE

You'll be instantly familiar with the Windows 95 user interface. You'll find pocket versions of Microsoft Word and Excel, plus Information Management Software compatible with Microsoft Schedule +.

Communication

*With bundled features like e-mail, Microsoft Internet Explorer and remote access software, you'll be able to stay in constant touch with your data.**

Form With Substance

Check out its sleek, lightweight design with a touch-sensitive, backlit display. It can have 6MB of RAM, and can give you up to 20 hours of power. On just two AA alkaline batteries.

Compaq Innovation

And who better than the number one PC company to provide you with the best extension to your PC?

© 1996 Compaq Computer Corporation. All rights reserved. Compaq registered U.S. Patent and Trademark Office. Microsoft, Windows and the Windows Logo are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. Other products mentioned may be trademarks or registered trademarks of their respective companies. *Modem is optional and required for access.

Circle 51 on reader service card

More accessible Web pages ◆ Are cookies good for you? ◆ Find doctors online

Beware of E-Mail Forgery

LAST SUMMER the editor of a computer magazine in Boston received a barrage of nasty e-mail messages, seemingly from me and other magazine editors. After a flurry of alarmed phone calls between network mail administrators at the magazines concerned, we traced the messages to an unknown hacker from an address in Buenos Aires. The hacker had broken into the mail servers of various magazines and sent forged e-mail messages to editors at other magazines.

Since journalists are often insulted by other journalists, most recipients of these forgeries only shrugged wearily.

The phenomenon is called "e-mail spoofing," and most e-mail systems are vulnerable to it. Even a mail server nestled behind a firewall can fall victim to a prankster who sends employees forged mail that looks like it came from other employees or companies.

The problem is most prevalent in secondary schools. Youngsters soon learn that they can use their new Internet connection to send e-mail to other students—and make it look like it was written by a teacher or the principal.

In an education mailing list, a junior high school administrator described how a student used his parents' America Online account to send harassing e-mail to a former teacher. By shipping it out on the Internet and redirecting it, this resourceful teen made it appear as if the mail originated from inside his school.

Is there any way to protect your mail server from pranksters? Unfortunately, no, because of weaknesses in the SMTP mail protocol. Until technology catches up to the wiles of sociopaths, you'll just have to discount as juvenile pranks all messages that don't make sense.

Especially if they're from me.

Make Your Web Page Friendlier for Sight-Impaired Readers

Here are tips to make sites accessible to sight-impaired viewers:

1. Offer text-only versions of your pages. Place the hot link to the text version at the very top of the page so surfers with screen readers don't have to listen to the entire page in order to find it.

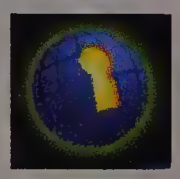
2. Skip the magenta fish-scale background with white letters. Aim for high contrast between text and background. White lettering on black is best for low-vision computer users. Use big, bold letters.

3. Avoid tables if you can. If you can't, provide a link to a text version of the table.

4. Include a description of each picture, or a link to a page describing the picture.

5. If you use an image map, provide a link to a page offering the map's links in text form.

6. Download NCAM's Web access symbol, shown here, from the NCAM site (http://www.boston.com/wgbh/pages/ncam/symbolwinner.html) and add it to your page.



WEB PAGES FOR THE DISABLED

FOR THE SIGHT-IMPAIRED, surfing the World Wide Web can be like stumbling through a dark art gallery: You can't distinguish the pictures from the doors. Your screen reader can't tell you what's in a picture. Image maps hold no information for you. You can't correctly "hear" what's in a table, because your screen reader jumbles its content into one long sentence.

Numerous efforts are under way to make the Web more accessible to visually impaired users. They range from defining HTML standards for tagging graphics with a good spoken description, to encouraging Web page owners to offer text-only versions of their pages.

The Web site of WGBH, a public television station serving the Boston area (http://www.boston.com/wgbh/pages/access/accessinstructions.html), offers a continuing experiment in accessibility solutions for both blind and hearing-impaired users. For those with limited vision, for example, a giant letter *D* precedes images on the WGBH site (see the figure below). Clicking on the *D* displays a two- to three-sentence description that can be heard through a screen reader.

Making your own Web site (business or personal) accessible to users with disabilities doesn't require a lot of work (see "Make Your Web Page Friendlier for Sight-Impaired Readers").

Offering a text-only version of your page is a good start. You'll find a complete guide on how to make a Web site more easily accessible at the Web site of the Trace R&D Center at the University of Wisconsin, Madison (http://www.trace.wisc.edu/world/web/index.html).

You might also check out the page for the National Center for Accessible Media (http://www.boston.com/wgbh/pages/ncam/captionedmovies.html), shown in **FIGURE 1**, and the page for the Center for Information Technology Accommodation (http://www.gsa.gov:80/coca/).

As one blind Web surfer notes, "The number of solutions is proliferating. The great thing about the Web is that it offers something for everyone."

HAVE A COOKIE

I'M RUNNING Netscape Gold 3. When I choose Options•Network preferences/Protocols, it says 'Show an alert before accepting a cookie'. I placed a check mark in the box, and now, when- ▶

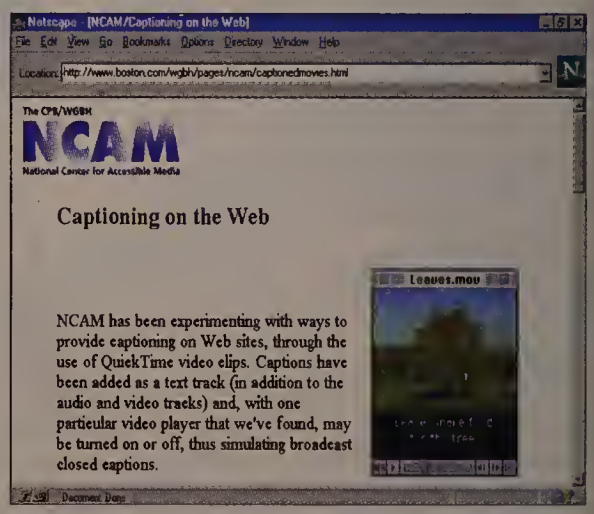
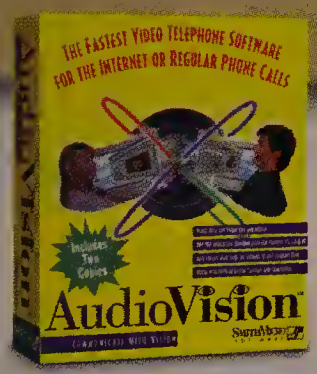


FIGURE 1: CAPTIONS FOR QUICKTIME MOVIES can be added as text tracks. The National Center for Accessible Media is exploring such options.

See what you've been missing on the Internet.



You've got Internet e-mail, Internet chat sessions and even Internet telephone calls. But if you're not communicating with live video and audio over the Internet – you're missing the picture.

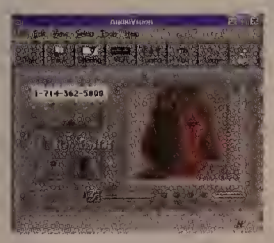
AudioVision 2.0 is the amazing software that lets you communicate with live two-way audio and video over the Internet and by direct telephone connection. And AudioVision is fast, with transmission rates up to 15 frames a second over ordinary telephone lines.

With AudioVision, you can send VMail™, video e-mail that any Windows user can view – without additional hardware. And since it takes two to communicate, AudioVision includes two copies, plus a copy of AudioVision/324, the special edition of AudioVision that lets you connect with standard H.324 video phones worldwide.

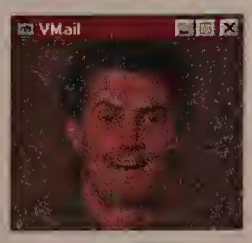
AudioVision supports virtually all major digital cameras and most capture boards and it's a breeze to install and use. So stop missing the picture, pick up AudioVision or download a free demo version at www.smithmicro.com

call the plant in asia over the Internet and discuss scheduling using the whiteboard

call grandma and show her how the kids have grown



call home from a business trip using your laptop



send a 2 minute VMail to a customer in a file that's less than a megabyte

SMITHMICRO SOFTWARE
A Better Way to Communicate.

See us on the Web at www.smithmicro.com or call 800-964-7674 for a dealer near you.

© 1997 SmithMicro Software, Inc., 51 Columbia, Aliso Viejo, CA 92656

Circle 211 on reader service card

ever I log on to PC World Online, I get this message: 'The server www.pcworld.com wishes to get a cookie that will be sent to any server in the domain pcworld'. What is a cookie? What are you sending me and what will it do to my PC?

Don A. Dudley, Fond du Lac, Wisconsin

DON'T WORRY ABOUT IT, DON. We're only collecting data to use in scientific experiments. I can't tell you what the experiments are, only that we will know shortly what sorts of things drive our readers to pull out their credit cards and send us huge amounts of cash.

Just joking. Actually, cookies are pretty harmless, and they can save you time on a Web site or offer customized service. A cookie is merely some encoded data that a Web site sends your browser for retrieval later, when you progress to a different page in the site or when you next log on to the site. The cookie could be a number that identifies you from one visit to the next, or it may be information that you've typed into the Web site.

For instance, if you visit an online shopping site, you might select items to add to an "electronic shopping cart." When it comes time to place your order—either 25 Web pages later or during your next visit to the site—the Web site must send your browser a cookie identifying you and specifying the items you selected. In this case, your browser and the site may pass cookies back and forth many times during an online session.

Cookies have other uses as well. Cookies can generate profiles of a Web site's visitors—monitoring the pages and items people like to access—for marketing purposes or to tailor the site better to users' interests. At Yahoo's My Yahoo site (http://edit.my.yahoo.com/bin/login), cookies help create a personal version of Yahoo that includes your favorite Web sites and news topics. PC World Online (http://www.pcworld.com/) uses cookies to create its Interactive Top 20 feature, and in the future, cookies will help give readers personalized views of the site.

There's no risk from cookies: They can't contain viruses to infect your system, nor can they steal private data off your disk and send it to the originating Web site.

Not all browsers support cookies, but most soon will because corporate America wants them. Cookies are the only way a Web site can track users from one page to the next. They're also the only way to know how many surfers are accessing a site. Navigator keeps a list of the cookies it has collected in a file named cookies.txt in your Navigator directory (see **FIGURE 2**).

Many people think that cookies are a violation of privacy. You can tell your browser to warn you whenever a Web site tries to send you a cookie, then forbid it from doing so, as you have done. But when you log into sites that repeatedly attempt to send cookies, those pop-up alerts can get irritating.

One solution is Internet Fast Forward, a Navigator plug-in that stifles all cookie giveaway attempts. Fast Forward can also block out those annoying ads that scroll at the bottom of the screen, and graphics larger than a specific size. You can download the free beta version of Fast Forward from the PrivNet Web page (http://www.privnet.com/iff.html), or look on PC World Online for the file named iff095b2.exe. Prices of non-beta versions were not set at press time.

If you swear off cookies, be aware that your favorite Web sites may start to show certain forms of brain damage. For example, you may have to register every time you visit a page.

Where did the term *cookies* come from? Its source is the hacker phrase *magic cookies*, applied to programs with seemingly magical powers.

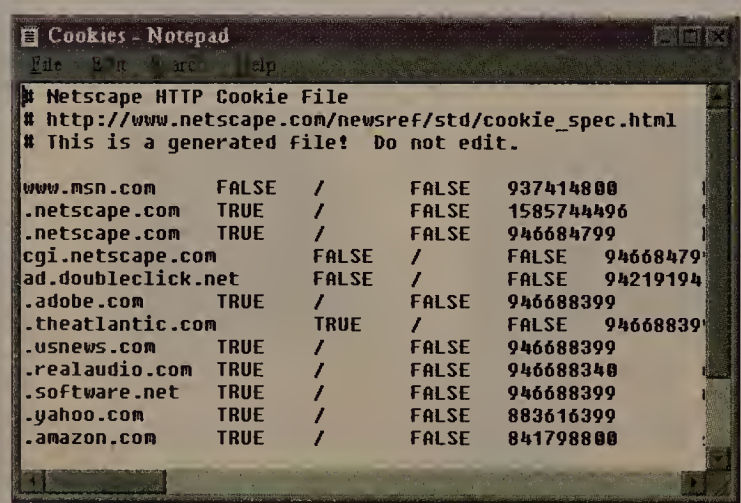
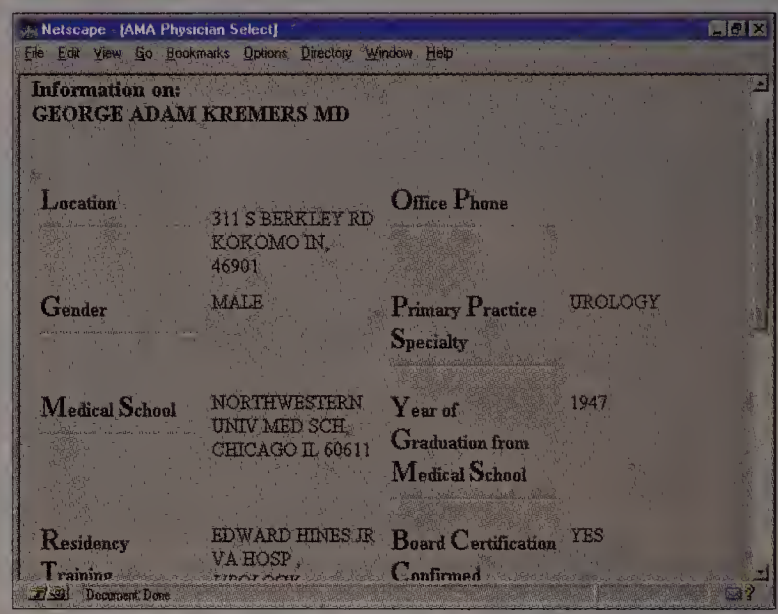


FIGURE 2: NETSCAPE'S COOKIE FILE lists the names of Web sites that have shipped you cookies (the leftmost column) and the names of the cookies (the rightmost column).

Find-a-Doc Online

Looking for an otolaryngologist in your state, or want to check your physician's credentials? Head to the American Medical Association's Web site (http://www.ama-assn.org/) and click the *AMA Physician Select* link.

You can search for doctors by specialty, name, and location. Physician Select will tell you where the doctors went to med school, where they did their residencies, and whether they're board-certified in their specialties. Don't look for malpractice suit filings or complaints to state medical boards, however. The AMA wants to keep such information offline.



Find files from this article and additional tips at http://www.pcworld.com/hereshow.html. Internet Tips *welcomes your questions and tips and pays $50 for published items. Contributing Editor Judy Heim is the author of* Internet for Cats *(No Starch Press, 1995, 800/420-7240). See page 12 for contact information.* ■

Don't Get Caught In the ZIP...

540 Big MBytes per Disk

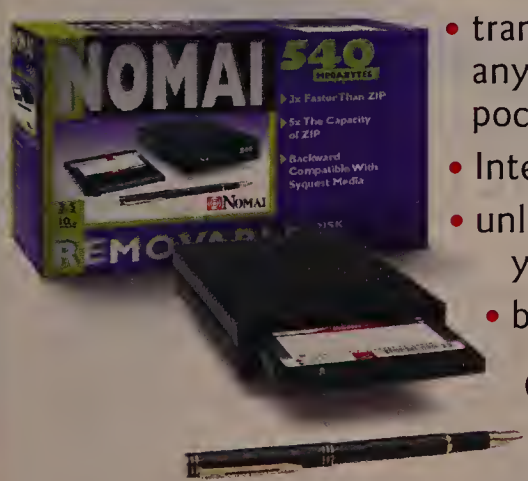
Catch Nomai, the smartest thing to come along in removable storage for the PC. The Nomai 540 is:

3 Times Faster Than ZIP 100

- **Fast** - 3X faster than a Zip® 100 drive for both access time and data transfer rate.
- **Flexible** - only Nomai can use two types of 3½"media. Either Nomai 540 MByte disks or SyQuest® compatible 270 MByte disks. Now available in internal & external for SCSI or external parallel.
- **Fantastic** - at just 11 cents per MByte, it's nearly half the cost of Zip media per MByte.

Also Uses SyQuest Compatible 270MByte Disks

Use your Nomai 540 for:



- transporting almost any size file in your pocket
- Internet file downloads
- unlimited extension of your hard drive
- backup & archiving

Catch Nomai, the faster, smarter choice in removable hard disk storage.

NOMAI™

Microsoft® Windows®95 Compatible

Mac OS

NOW $299* with 540MB Disk Included!

*Internal with SCSI board

Mail Order:

TigerDirect 800-888-4437

PC Connection 800-800-5555

PC Mall 800-863-3282

The PC Zone 800-416-9663 NO11

Distributed by:

PRIMA INTERNATIONAL 800-724-3000

Laguna Technologies 714-859-7929

NOMAI USA Tollfree **1-888-99-NOMAI**. Call for distributor and reseller opportunities. All trademarks are properties of their respective companies.

Circle 161 on reader service card

The Search is Over

Time is valuable.

Why waste it searching through endless no-name Web sites to find the reliable computer-related information you're looking for? All you really need is PC World Online– your one stop shop for expert advice on what to buy and how to use it!

Circle 172 on reader service card

www.pcworld.com

A rose is a rose is a...wait a second.

Kodak DC-40 Digital Camera

Casio QV30 Digital Camera

EPSON PhotoPC 500 Digital Camera

$499

THE NEW EPSON® PHOTOPC™ 500 DIGITAL CAMERA WITH SUPERIOR IMAGE QUALITY. Roses are red, violets are blue, but only if you take their picture with the EPSON PhotoPC 500. The digital camera with 640 x 480 pixel resolution that gives you the most lifelike pictures around. It's got all the convenience of a regular camera, from its built-in red-eye reduction flash to its optional lenses and filters. But no other camera has Epson's unique ColorTrue™ in-camera processing and ClearOptics™ system, for accurate, vivid images that add impact to documents or e-mail messages. The PhotoPC 500 is flexible, too. With an optional LCD to preview, playback, or erase images. Memory that expands to hold 200 JPEG images. PC/Mac compatibility. And our free Internet Sampler Pak (valued up to $300) that lets you access and create Web pages. So, when it comes to digital photography, a camera by any other name just isn't as good. For more information, visit www.epson.com to download some sample images, or call 1-800-GO-EPSON and ask for operator 3050.

YOU'VE GOT TO SEE IT IN EPSON COLOR.™

RITZ CAMERA CENTERS

COMPUTER City COMPUSA

Street price may vary. Rose photos were taken with the Kodak DC-40, Casio QV30 and EPSON PhotoPC 500 as configured for retail sale. No special effects or lenses were used. Awards given to the EPSON PhotoPC, the first in the line of Epson color digital cameras. EPSON is a registered trademark of Seiko Epson Corp. ColorTrue and ClearOptics are trademarks of Epson America, Inc. All other trademarks are the property of their respective owners. ©1996 Epson America, Inc.

BEST BUY

Speed Up Dial-Up Modems

A LITTLE OVER A YEAR AGO, when the first crop of affordable V.34, 28.8-kbps analog modems hit the market, we were told that this technology squeezed every last bit of bandwidth out of the existing telephone infrastructure.

We were misinformed.

Two higher-performance features are showing up in affordable V.34 modems, thanks to new data-handling techniques: 33.6-kbps data rates and 230-kbps throughput. (Vendors are also talking about a third dial-up option said to offer rates up to 56 kbps in one direction, but at press time none had publicly shown such technology.)

The first of the options available today, 33.6-kbps rates, is not overwhelming. If you need another modem, by all means purchase one capable of 33.6 kbps; these cost little more than 28.8 models.

And if you already have a 28.8-kbps modem, check with your modem's manufacturer about upgrades. You can upgrade U.S. Robotics Courier modems to 33.6 kbps, for example, by downloading free software from the company Web site (http://www.usr.com/home/online/upgrades.htm). For most U.S. Robotics Sportster models, making the jump to 33.6 requires swapping a $25 ROM chip on the modem card.

But is it worth buying such a chip—or a whole new modem—just to gain 4.8 kbps? Probably not. You get, at most, a 17 percent increase in performance. And that assumes that you've got a similar modem on the other end and perfect line conditions for the transmission.

FREEDOM OF COMPRESSION

THE SECOND NEW FEATURE—230-kbps throughput through enhanced compression techniques—is a much better bet.

While we may identify modems by their modem-to-modem throughput (such as 14.4, 28.8, and so on), they can achieve much higher *effective* throughput as a result of compression.

When you transfer a file, your computer sends the file through a serial port (or, with internal modems, firmware that emulates a serial port) and into the modem, where it's compressed and then sent out. The efficiency of compression depends on the file type. Text and graphics files usually yield the best compression ratios, but precompressed files such as ZIP files can't be compacted much more.

The handling of highly compressible data is also limited by how fast the serial port can pump data to the modem.

Until recently, the fastest PC serial ports supported a maximum of 115 kbps, so 28.8 modems were limited to a maximum compression ratio of 4 to 1. But new enhanced serial ports that can handle rates of 230 kbps, combined with beefed-up compression hardware on the modem itself, have pushed that theoretical peak up to 8 to 1.

So if you're sending or receiving highly compressible data, you could conceivably double your throughput. In fact, our early performance tests of such modems appear to confirm this.

Does buying a new modem to obtain these higher rates worth it? If you send or receive lots of compressible files, yes.

WHEREFORE UART THOU

ONE CAUTION: THE KEY to an enhanced serial port is the UART chip, which controls the flow of data across the serial port. To support 230-kbps rates, the serial port should use at least a model 16650 UART; 16550 or earlier chips don't do the job.

External modems connect to a serial port that's controlled by a UART on the motherboard or on a serial card. To find out what type of chip your serial port uses, run PortInfo 4.0, a $20 utility from Computer Telecommunications Systems.

If you're stuck with a slow UART—and even most new motherboards currently use the 16550—consider buying a high-speed serial card like the ESP from Hayes Microcomputer Products or the TurboExpress from Pacific CommWare.

Internal modems put a UART right on the modem card or emulate it in firmware. So if you have an upgradable internal modem, you don't need to worry about the UART's limitations: The software or hardware boost will upgrade the UART functions as needed.

Finally, whatever modem you buy, make sure the manufacturer has software drivers for Windows 95, since the standard serial port driver may not be able to handle the higher rates.

• ESP $79.95 street; Hayes Microcomputer Products; 770/840-9200; http://www.hayes.com/

READER SERVICE NO. 779

• PortInfo 4.0 $20 shareware registration fee; Computer Telecommunications Systems, Inc.; 800/380-2666; http://www.comminfo.com

• TurboExpress $79.95 street; Pacific CommWare; 800/856-3818; http://www.turbocom.com/

READER SERVICE NO. 780

Find additional tips at http://www.pcworld.com/hereshow.html. Hardware Tips *welcomes your tips and questions and pays $50 for published items. Kirk Steers is a contributing editor for* PC World. *See page 12 for contact information.* ■

Pushing the Envelope for Dial-Up Connections

TECHNOLOGY	Pro	Con
33.6-kbps throughput	Up to 17 percent faster than previous 28.8-kbps standard.	Rarely achieved.
230-kbps effective throughput	Potential for dramatically greater throughput, especially with highly compressible files.	Maximum rarely achieved; requires very high-speed serial port.

ADVANCES IN ANALOG MODEM technology can boost dial-up access, but you'll rarely see these maximum speeds in the real world, and you'll need a similar modem on the other end.

SEND CARD FOR FREE CATALOG!

✓ **CHECK ONE FREE CAREER CATALOG ONLY. High school diploma or GED recommended for all courses, required for degree programs**

- ❑ **Computer Programming**
- ❑ Microcomputer Servicing
- ❑ Visual Programming in C++
- ❑ PC Applications Specialist
- ❑ Desktop Publishing with PageMaker
- ❑ Telecommunications
- ❑ TV/ Video/Audio Servicing
- ❑ Electronic Music Technology
- ❑ Industrial Electronics & Robotics
- ❑ Networking with Windows NT
- ❑ Basic Electronics
- ❑ Building Construction
- ❑ Home Inspection
- ❑ Air Conditioning, Heating & Refrigeration
- ❑ Automotive Servicing
- ❑ Paralegal
- ❑ Fiction/Nonfiction Writing
- ❑ Bookkeeping and Accounting
- ❑ Multimedia Programming
- ❑ Mastering Microsoft Office
- ❑ Webmaster

OR GET YOUR DEGREE!

- ❑ New! AAS Degree in Accounting
- ❑ New! AAS Degree in Business Management

Name *(Please Print)* Age

Street *(No P.O. Box numbers please)*

City State Zip

A Division of The McGraw-Hill Companies

Accredited Member, Distance Education and Training Council

For career courses approved under G.I. Bill, ❑ check for details

4543-0197

NRI Schools

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 10008 WASHINGTON, D.C.

POSTAGE WILL BE PAID BY ADDRESSEE

NRI Schools
4401 CONNECTICUT AVENUE NW
WASHINGTON DC 20078-3543

With NRI training in Computer Programming, you can...

Name Your Price!*

Bonus Internet Training!

If you think computer programming is hot today, just look at the forecast for tomorrow — and for many years to come! The Bureau of Labor Statistics estimates that by 2005, computer-related employment will jump by an estimated 60% nationwide for trained programmers — with as many as 400,000 NEW jobs opening up!

Now, with NRI training, you can get the in-demand skills you need to build a top-paying career — or business of your own — in this high-growth, high-opportunity field!

***Those with up-to-the-minute skills can almost name their price.**

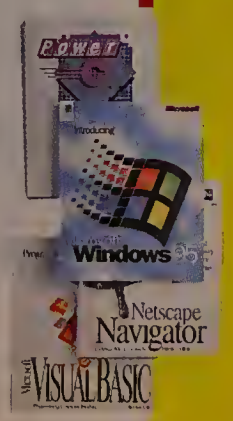
— *The Washington Post*, June 4, 1996

In as little as a year, you can become the highly skilled computer programmer today's companies seek — and see your NRI training literally pay off! In fact, according to the Washington Post, annual starting salaries range from $32,000 all the way up to $47,000 in some cities for those with expertise in today's hottest programming languages!

Master today's hottest languages!

NRI's step-by-step lessons and hands-on programming projects help you first master the design concepts used every day by successful PC programmers. Then, with the support of your experienced NRI instructor, you quickly move on to learn how to design, code, run, debug, and document programs in three of today's hottest languages — BASIC, C, and Visual Basic — plus you learn to generate fully functioning Windows 95 programs. And you do it all using the powerful Pentium® computer system included in your course.

To make it even easier to progress through your course, NRI's 24-hour TeleGrading line allows you to get instant feedback on your lesson exams, and our new OnLine Connection lets you send e-mail messages to your instructor, download supplemental information, and more!



Train with a 133 MHz Pentium® processor-based multimedia PC, featuring...

■ 8 meg RAM ■ 1 gigabyte hard drive ■ Super VGA color monitor ■ 8X CD-ROM drive with sound card ■ 28,800 baud fax/modem ■ Visual Basic ■ Power C ■ Windows 95 ■ Netscape Navigator™ Web browser ■ And more!

Now, with NRI's new PC Options Plan, you can keep up with late-breaking advances in technology by upgrading your computer system at special student rates. You'll get all the details shortly before your computer is scheduled for shipment. It's NRI's state-of-the-art guarantee!

Learn to tap the power of the Internet

Now your course includes bonus training in PC Communications and the Internet. Using the Netscape Navigator™ Web browser we provide, you can effortlessly move from one site to another as you explore the vast resources of the Internet and World Wide Web.

Send today for your FREE catalog

If the coupon is missing, write to us at the NRI School of Programming, 4401 Connecticut Ave., NW Washington, DC 20008. Or...

CALL 1-800-321-4634, Ext. 2163

You may even contact us through our World Wide Web Home Page at: http://www.mhcec.com

SEND TODAY FOR FREE NRI CATALOG!

NRI Schools 4401 Connecticut Avenue, NW, Washington, DC 20008

- ☑ **Check one FREE career catalog only**
- ☐ **COMPUTERPROGRAMMING**
- ☐ Networking with Windows NT
- ☐ Visual Programming in C++
- ☐ Microcomputer Servicing
- ☐ Desktop Publishing with PageMaker
- ☐ Bookkeeping and Accounting
- ☐ Multimedia Programming
- ☐ Mastering Microsoft Office
- ☐ Webmaster

OR GET YOUR DEGREE

- ☐ **New!** AAS in Accounting
- ☐ **New!** AAS Degree in Business Management

Name (please print) Age

Address

City/State/Zip

A Division of The McGraw-Hill Companies Accredited Member, Distance Education and Training Council 4543-0197

Talk *and* Listen on the Net

VENDORS OF INTERNET telephony products have come to a startling realization: Most people like to talk and listen at the same time. The technical term for this is full-duplex communication, and it's like talking on a phone. The alternative, half-duplex telephony, is like using a walkie-talkie or two-way radio: Each party must take turns speaking. For a recommended list of full-duplex sound cards, see VocalTec's (makers of Internet Phone) Web site (http://www.vocaltec.com/fdxbr.htm).

If you've got a half-duplex board, you're probably out of luck. But there are some exceptions. Among these, Creative Labs' Sound Blaster 16 and Sound Blaster AWE32 are full-duplex cards that ship with half-duplex drivers. You can download the full-duplex drivers for the SB 16 and AWE32 boards from Creative Labs' FTP server (ftp://www.creaf.com/pub/creative/drivers/sb16awe/). For Windows 95, download sbw95up.exe; for Windows 3.*x*, get awedw3up.exe and s16dw3up.exe.

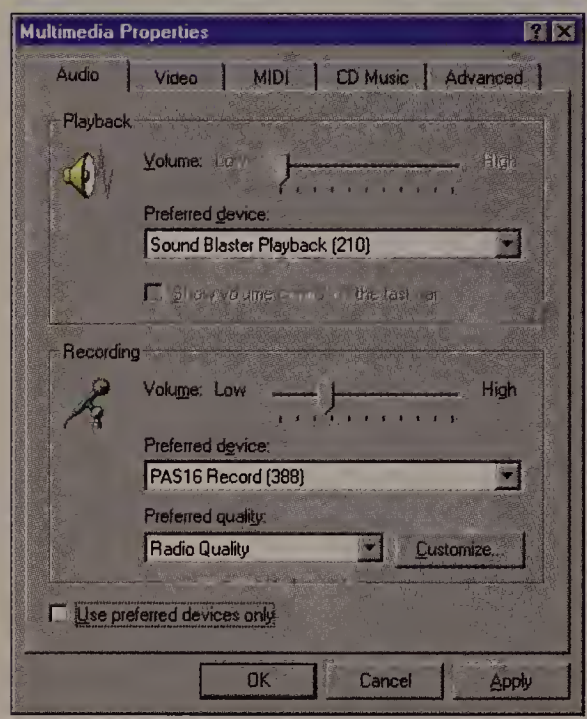


FIGURE 1: TALK NORMALLY OVER THE INTERNET by tricking your Pro Audio Spectrum board with the settings shown here.

Media Vision's Pro Audio Spectrum products are half-duplex sound boards, but they have a unique feature that lets them function like full-duplex boards. The Pro Audio Spectrum series (including the Pro Audio Studio) gives you Sound Blaster quality by using a separate, dedicated hardware section—it's like having two separate boards in one slot. To get the full-duplex effect under Win 95, install a Pro Audio board, then select *Start•Settings•Control Panel,* double-click the *Multimedia* icon, and click the *Audio* tab. Choose the Pro Audio Spectrum board, which is listed as *PAS16 Record (388),* as your preferred recording device, and *Sound Blaster Playback (210)* as your preferred playback device; then click *OK* (see **FIGURE 1**).

To see the Sound Blaster emulation as a choice in the Playback section's 'Preferred device' list, you may first need to choose a Basic configuration. Choose *Start•Settings•Control Panel,* double-click the *System* icon, click the *Device Manager* tab, double-click your Pro Audio Spectrum board's icon under the 'Sound, video and game controllers' branch, click the *Resources* tab, click the *Use automatic settings* box to deselect it, choose *Basic configuration 1* or *Basic configuration 2* from the *Setting based on* list, and click *OK.*

VIDEO CDS–ON A PC NEAR YOU!

EVER NOTICE THOSE personal TV screens in first class as you wander back to coach? If you have a fast multimedia-equipped laptop, you can watch Robert Duvall in *Apocalypse Now* at 35,000 feet as you download your mail while everybody else suffers through *Bunting's World.*

Video CDs contain up to 70 minutes of MPEG-1 compressed video with quality like that of a VHS tape (see **FIGURE 2**), and the medium is compact and durable.

Most of the Pentium PCs sold today will play Video CDs without additional hardware. All you need is a software MPEG player such as Microsoft's free ActiveMovie Player (http://www.microsoft.com/imedia/activemovie/activem.htm), or CompCore's SoftPEG 2.0 (a demo version is available from http://www.compcore.com/TESTDRIV.HTM).

Most 90-MHz Pentium systems are fast enough to play MPEG, but if you want to play your Video CD in full-screen resolution, rather than the original size of 352 by 240 pixels, you may want to invest in MPEG playback hardware. Sigma Designs' $299 RealMagic Maxima is an ISA-bus MPEG decoder that lets you scale MPEG-1 clips as large as 1280 by 1024 pixels. Several video board manufacturers sell MPEG decoder add-ons for their products that do the same job.

The toughest part of playing Video CDs today is finding them. You can order hundreds of titles over the phone from the following vendors: Philips Media, located in Los Angeles, one of the main Video CD publishers (800/340-7888); D-Media of Westminster, California (800/332-8226 or 888/236-6843); and Carl Industries of Miami (305/594-7784). Video CD titles are priced like other video media, from $15 to $40, depending on content.

• RealMagic Maxima $299; Sigma Designs; 800/845-8086; http://www.tile.net/tile/vendors/sigmadesigns.html

READER SERVICE NO. 644

Find additional tips at http://www.pcworld.com/hereshow.html. Multimedia Tips *welcomes your questions and tips and pays $50 for published items. Contributing Editor Scott Spanbauer is author of* The No B.S. Guide to Windows 95 *(No Starch Press, 1996, 800/420-7240). See page 12 for contact information.* ■

FIGURE 2: WATCH YOUR FAVORITE MOVIE on Video CD while you download your mail. (Here's Robert Duvall in Apocalypse Now.)

"BEST GIZMO EVER."*

Snappy is the amazing new invention that puts pictures of ANYTHING into your PC.

FROM THIS... INTO THIS!

Any Camcorder

Live Picture or Taped Memory from Weddings, Reunions, Vacations, Holidays, Birthdays and more...
Now in Your PC.

Any VCR Tape

TV Show, Sporting Event, Home Video, Rented Tape, Laser Disc Scene and more...
Now in Your PC.

Any Photo

Postcard, Snapshot, Newspaper, Slide, Yearbook, Family Portrait, Baby Picture, Negative, Magazine and more...
Now in Your PC.

Installs in Seconds

With Snappy you finally have a way to bring *your* pictures into *your* PC. It's so easy! Just plug Snappy into the printer port on the back of any Windows PC (or laptop). Then connect any video source with the included cable. With the press of a single button, you'll get breathtaking 16.8 million color pictures at record-breaking resolutions up to 1500 x 1125, made possible by Play's breakthrough custom chip and advanced software technology.

Snappy is perfect for thousands of uses from work to home to school. Create anything from desktop publishing, presentations, databases, faxes and internet pictures, all the way to PC photo albums, school reports or just morph your friends into celebrities snapped right from TV. Snappy includes everything you need to do all this and more.

$199.95 A.S.P.

FREE SNAPPY DEMO DISK @ http://www.play.com

24 hour recorded info & fax back 800.450.PLAY or call 800.306.PLAY for your nearest retailer.

* We're proud that Snappy (in addition to being pretty cool) is already the best-selling, most award-winning, best-loved computer video product in history!

PLAY INCORPORATED
2890 Kilgore Rd., Rancho Cordova, CA 95670 • 916.851.0800 Fax 916.851.0801

Tiny Lawyer Words: Play's Snappy and the Snappy logo are ours and thus trademarks of Play Incorporated. Play is a registered trademark of Play Incorporated.© 1996

Available Now at: Computer City • Best Buy • Egghead • CompUSA • Staples

Circle 192 on reader service card

Add a New Graphics Card

Today's graphics cards rip through once-daunting tasks like running full-motion video, and you can often buy one for half what you would have paid a year ago. These cards can help you grind through many of your toughest jobs—or lure you away from them by making the new 3-D games even more compelling!

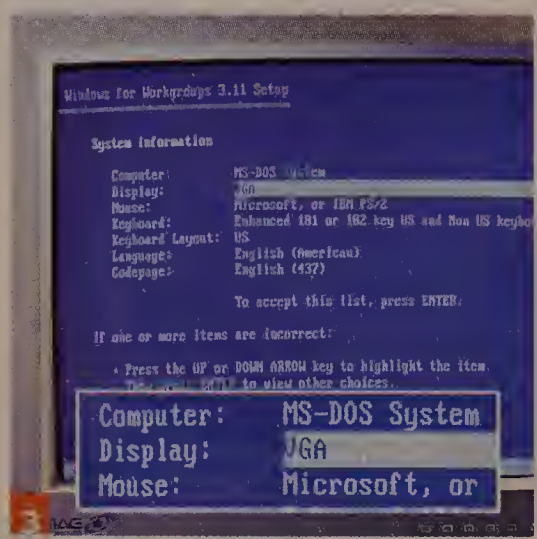
For buying tips, see "Upgrades: The Best for the Buck" (November 1996). For the latest review, see *Top 10 Graphics Boards* in this issue. One warning: Your existing monitor may not be able to handle all that a new graphics card can do. Changing your graphics card can be one of the easiest upgrades, but remember the basics shown here. For additional hints and tips, check PC World Online (http://www.pcworld.com/hereshow/).

Stan Miastkowski is a PC World *contributing editor.*

Check your graphics. Before deciding what to buy, see whether your existing motherboard handles ISA, VESA local bus, or PCI cards—or a mixture. Check your manual, or open your PC case and find the existing graphics card (attached to the monitor). If necessary, unhook the monitor and remove the card to look at its slot. In case graphics are built into the motherboard, read the next paragraph.

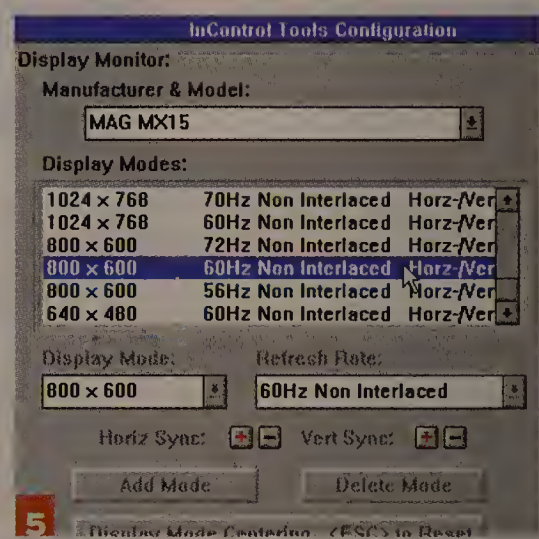
If graphics are built into the motherboard instead of on a card, you can still install a card, but read your manual or call your dealer to find out how to disable the onboard graphics. With some motherboards you need to move a jumper, flip a tiny DIP switch, or change a setting in your BIOS. Other motherboards switch off the onboard graphics automatically as soon as you plug in a card.

Buy your new card. If your PC's motherboard has a PCI bus, you'll find the widest selection of cards ranging from inexpensive to high-end. If your PC has a VESA local bus or an ISA bus, choices are more limited, the performance boost won't be as great, and the chance of installation hassles increases. Given the option, always choose a PCI or VESA graphics card over an ISA graphics card.



Prepare your software. If you're running Windows 95, you don't need to make any software changes before installing the new card. If you're a Windows 3.*x* user, exit to DOS (don't just open a DOS box), run the setup program located in the \windows directory, and change the Display setting to VGA before installing your new card.

Install the board. Unplug the monitor, remove the PC case, and remove the old graphics card, or disable the built-in graphics adapter if that's what you have. Ground yourself by touching the metal casing of your PC, grab the new card, and plug it in. Firmly tighten the screw that holds it in. Connect the monitor to the new card, but don't put the case back on yet.



Install the software. Software drivers should come with the new card. Turn on your PC. If you're running Windows 95, it should sense that a new card has been installed and ask you to insert the proper driver. If you're running Windows 3.*x*, you must install the driver manually. If everything's working, turn your PC off and put the cover back on. ■

WINNER OF 34 BEST BUY AWARDS — Computer Shopper Best Buy OF 1998

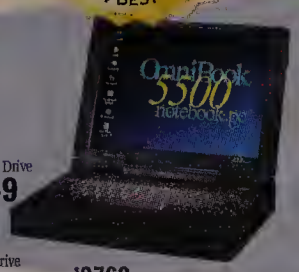
USA FLEX

The Lowest Prices on Over 20,000 Computer Products

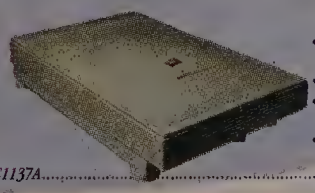
HEWLETT PACKARD Authorized Reseller

P Omnibook 5500CT
2.1" Active Matrix Display • 16MB RAM
33MHz Pentium Processor • 1.35GB Hard Drive
21A $4169

nibook 800CS
0.4" Active Color Display • 16MB RAM
00MHz Pentium Processor • 1.35GB Hard Drive
71A $2769



Scan It. Shape It. Share It.
HP ScanJet 4p Scanner
HP's lowest-cost color scanner!



- 1200dpi enhanced resolution; 300dpi optical
- 8-bit Grayscale (24-bit color)
- Scans any document up to 8 1/2" x 14"
- 1-year HP warranty

C1137A $469

New Lower Prices on All Hewlett-Packard Products

Hewlett-Packard LaserJet 6P Printer
New

- True 600dpi • Fast 8ppm printing
- Fast, wireless 4Mb/s infrared printing
- 1-year warranty w/free HP Express Exchange overnight printer replacement

C3980A $699

HP LaserJet 6MP printer
- Faster processing & Adobe™ Postscript™ formatting
- Easy sharing w/two parallel ports, plus LocalTalk & 4Mb/s IrDA infrared connectivity

C3982A $849

Take Another $20 OFF all Sportster 28.8 Modems

Monitors/Graphics Cards

NEC
15" M500 Multimedia $479
17" M700 Multimedia $749
15" MultiSync XV15+ $426
17" MultiSync XV17+ $757
21" MultiSync XE21 ..... $1715

VIEWSONIC
17GS $649
20G $1199
21" VS-G810 ..... $1511
17" Sonictron VS-PT770 ..... $713
15" VS-15ES $334
15" VS-15GA $398
17" VS-17GS $398
20" VS-20G $1114

MAG INNOVISION
15" OX1595 ..... $345
17" DX1795 ..... $611
17" OX700T $700

PLAY
Snappy Video Capture $189

SONY
15" CPO-15SX1 ..... $444
17" CPD-200SX $671
15" CPO-100SX $390
Multiscan 15SFI1 ..... $472
Multiscan 17SFI1 ..... $775
Multiscan 17SEI1 ..... $976
Multiscan 20SFI1 ..... $1635

CTX
15" CTX-VL500 ..... $318
17" CTX-VL700 ..... $553
17" 1785GME-1 ..... $669
20" CTX-2085-1 ..... $1070
LMT-5030 Active Matrix color TFT LCD panel .. $2342

PANASONIC
15" PanaSync E15 ..... $320
15" PanaSync/Pro P15 ..... $390
17" PanaSync S17 ..... $638
17" P17 ..... $762
21" E21 ..... $1405

PRINCETON GRAPHICS
14" PGS-ULTRA40 ..... $225
15" PGS-ULTRA50 ..... $288
17" PGS-ULTRA70F $511

HERCULES
T2312EOO Terminator 3D PCI, 2MB $168
T2314EOO Terminator 3D PCI, 4MB ..... CALL
T2212EOO Terminator 64 PCI, 2MB $81

ATI
ATI-VIDXPCI2 Video Xpression PCI, 2MB $115
ATI-3DXPCI2 3D Xpression PCI, 2MB $145
GPROTURBOPCI2 Graphics Pro Turbo, 2MB $219
GPROTURBOPCI4 Graphics Pro Turbo, 4MB $312

CREATIVE LABS
GBMA201 Graphics Blaster MA201 ..... $69
GBMA202 Graphics Blaster MA202 ..... $86
GBMA302 Graphics Blaster MA302 ..... $129

Modems/PC Cards

MEGAHERTZ BY US ROBOTICS PC CARD
28.8 XJ Ethernet Cellular XJEM3288T $309
28.8 XJ 10BaseT 10Base2 Cell XJEM3288C $329
28.8 XJ 14.4 Fax Cell Capable XJ4288 ..... $219
28.8 Cable 14.4 Fax Cellular CC4288 ..... $239
Courier 28.8 PC Card w/cable CR-001015 ..... $255\

SIMPLE TECHNOLOGIES PC CARD
28.8 SimpleJack 14.4 Fax STI-FAX288SJC $222

HAYES PC CARD
Optima 33.6 EZJack SmartCom HAY-02690 ..... $239

PRACTICAL PERIPHERALS PC CARD
Practical Internal 33.6 Internet Kit PC336HC-INET $115
Practical Internal 33.6 Internet Kit PC336MT-INET $133

CONNECTWARE PC CARD
PhoneWorks 33.6 To Go Cable PWT0G0336 .. $269
PhoneWorks ISON+ To Go PCISDN-PLUS $450

BOCA ISA BUS
Office Communicator 28.8 D1-FDVSP34I $139*
SoundExpression 28.8 D1-SE34SRS $231*

CREATIVE LABS PC CARD
ModemBlaster 28.8 Cable MB28.8PCMCIA $239

HAYES ISA BUS
Accura 33.6 SmartCom Software HAY-02758 ..... $134*
Accura 33.6 External Internet Solution HAY-02760 ..... $142
Accura 33.6 Internal Gaming Solution HAY-02753 ..... $160

PRACTICAL PERIPHERALS ISA BUS
V.34 28.8 Data/Fax Internet PM288HCINET .. $129*
V.34 28.8 Data/Fax Internet PM288MTIINET $149

US ROBOTICS ISA BUS
Sportster 28.8 Software SP-000840 ..... $139*
Sportster 28.8 Internet Software SP-000839 ... $159
Sportster WINMODEM Win Only SP-001125 ..... $109*
Sportster Voice 28.8 SP-001171 ..... $159*
Sportster Voice Ext, V.34, 28.8 & 33.6 SP-001172 .. $184
COURIER V.EVERYTHING CR-001223 ..... $239*
COURIER V.EVERYTHING CR-001224 ..... $269

*Internal Modem

All US Robotics 28.8 and 33.6 Modems Upgradeable to 56Kbps — Call Now For Details

Multimedia/CD-ROM

NEC
MultiSpin 4Xc 7 Oisk Changer (External) $349
MultiSpin 8Xi/8Xe ..... $239/$349
MultiSpin 8X, IDE/ATAPI $139

PANASONIC
10X 5-Oisc CO-ROM Cbanger $249
Portable 4X CD-ROM Orive w/Speakers $499*
Portable 8X CO-ROM Orive ..... CALL

PHILIPS
4X2 CD-Writer ..... from $499*

CREATIVE LABS
Blaster CD 8X PnP $249
Olscovery CO 8X $379
SoundBlaster Performance 8X PnP $449
SoundBlaster 16 Value IDE PnP $88
SoundBlaster AWE 32 PnP $213
SoundBlaster 32 PnP $130

PINNACLE MICRO
Vertex 2.6GB Optical $1399
4X4 CO-Writer Internal/External ... $999/$1099

PLEXTOR
8Plex Internal w/o Interface $349
8Plex External w/o Interface $449
8Plex External w/ISA Card $499
8Plex External w/PCI Card $629

HEWLETT-PACKARD
HP SURESTORE CO-WRITER ..... CALL

SONY
SRS-PC40 Speakers $75
SRS-PC91 ..... $139
SRS-PC300D Speakers $199

Price after manufacturer's mail-in rebate. Ask your salesperson for details!

Printers...Laser/Ink Jet/Dot Matrix

HP PRINTERS
DeskJet 340 Bundle (Incl. color kit & battery) $249*
DeskJet 400C/690C Printer ..... $189/$329
DeskJet 690C $329
DeskJet 820CXi/870 CXi ..... $364/$469
OeskJet 1600C /CM Printer ..... $1269/$1869
LaserJet 5L-FS $399*
LaserJet 6P/6MP ..... $699/$849
OfficeJet 330 (Printer/Fax/Copier/Scanner) $499

EPSON
LX300 ..... $169
LQ-570+/1070+ ..... $245/$385
FX-870/1170/2170 ..... $289/$379/$499
LQ-870/2170 ..... $447/$599
DFX-5000+/8000 ..... $1395/$2329
Stylus Color 200 ..... CALL
Stylus Color 500 ..... $279
Stylus Pro (720dpi Microdot) $379
Stylus 1500 (up to 17x22) $995
Stylus Pro XL (720dpi Microdot, up to 13x19) $1799
Postscript Interpreter avail. for Stylus Pro & Pro XL color printers.

BROTHER
HL-720 (Windows Only) $349
HL-730 (Window & DOS) $399
HL-760 (1200x600) $479
HL-1060 (10ppm, 1200x600, dual bins) $799
MFC-690 (thermal) $269
MFC-1950+ (ribbon) $499
MFC-4550 (laser) $799
MFC-6550MC (laser) $999
MFC-7550MC (laser) $1199

OKIDATA PRINTERS
OkiPage 4W (Windows Only) $299
OL600e/OL610e/OL810e ..... $399/$499/$699
ML320/ML321 Turbo ..... $319/$449
ML590/ML591 ..... $449/$609

CANON
8JC-240 ..... $179
8JC-4200 ..... $279
BJC-4550 (up to 11x17) $499
8JC-620 ..... $399
LBP-465 (Laser) $359
C2500 (Fax, Scanner, Printer, Copier) $599

LEXMARK
Winwriter 150C $185
Color Jetprinter 1020/2070 ..... $145/$339
Color Jetprinter 2050 ..... $249
2380/2381 Plus Oot Matrix Printer ..... $315/$425
2390/2391 Plus Dot Matrix Printer ..... $359/$465
4079 Plus $2489
4226 Dot Matrix $1269
4039 10 Plus $1069
Optra E $539
Optra R+/OptraRt+ ..... $1249/$1479
Optra Lx+/Optra Lxn+ ..... $1859/$2229
Optra C $5989
Optra N/Optra N w/16M8 RAM ..... $2679/$3379

PANASONIC PRINTERS
KX-P6500 ..... $349*
KX-P1150/P2230 ..... $135/$169*
KX-P3124 ..... $315
KX-P2135 ..... $245

NEC
SuperScript 860 (laser) $479

Price after manufacturer's mail-in rebate. Ask your salesperson for details!

Desktops Systems

IBM Aptiva S Series
S64, P166, 16MB, 2.5GB, with 15" Monitor/with 17" Monitor .. $2999/$3299
S66, P166, 16MB, 3.2GB, with 15" Monitor/with 17" Monitor .. $3149/$3449
S74, P200, 16MB, 2.5GB, with 15" Monitor/with 17" Monitor .. $3299/$3599
S78, P200, 32MB, 3.2GB, with 15" Monitor/with 17" Monitor .. $3599/$3899
Full Line of IBM Monitors Available!

Compaq DeskPro Series
OeskPro 2000, P100, 8MB, 1.2GB $1279
OeskPro 2000, P120, 8MB, 1.26GB $1399
DeskPro 2000, P166, 16MB, 1.26GB $1949
OeskPro 4000, P133, 16MB, 1.08GB $1799
DeskPro 4000, P166, 32MB, 1.62GB, 8X CD-ROM $2889
OeskPro 6000, P166, 32MB, 2.18GB $3519
OeskPro 6000, Pentium Pro 200, 32MB, 2.1GB, 8X CD-ROM $3989

FLEX Systems
The Flex 440 Special P-Pro180, 16MB, 1.2GB, MT, 8X, 14" $1899
Multimedia Tower, P-Pro200, 32MB, 3.0GB, 8X, 17", BJC620 ..... $3795
New Year Classic, P133, 16MB, 1.6GB, MT, 8X, 15", ZIP Drive $1997
Multimedia Classic, P-Pro180, 16MB, 2.5GB, MT, 8X, 15" $2995
Home/Office Special, P166, 16MB, 2.5GB, MT, 17", HL720, ZIP Drive . $3349
8usiness Workstations starting at $1349
Custom Systems Available–Call your Flex sales representative for full details.

HP Vectra 500 Series
510CD, 5/100 P100, 8MB, 1.28GB, 4X $1099
515, 5/133, P133, 8MB, 1.66GB $1199
515MCX, 5/100, P100, 8MB, 1.28GB, 4X, Sound, Telephony $1299
515MCX, 5/133, P133, 16MB, 256K, 1.6GB, 8X, Sound, Telephony ... $1599
515MCX, 5/166, P166, 16MB, 256K, 2.5GB, 8X, Sound, Telephony ... $1999

IBM, HP & AST models do not include monitor unless otherwise stated.

Scanners

EPSON
Photo Scanner $189
Action Scanner II $375
ES1000C $699
ES1200C $589
Flatbed Scanner (Pro) $1766
Flatbed Scanner (Artists) $1275
Flatbed Scanner (Exec) $852

MICROTEK
Scanmaker E3 ..... $293
PageWiz $89
Scanmaker E6 ..... $535
Scanmaker E6 Pro $708

HEWLETT-PACKARD
HP ScanJet 4S Scanner $179
HP ScanJet 4P Scanner (color/grayscale) $469
HP ScanJet 4C Scanner (color) $789

REFLEX

Check out these Absolutely Lowest Prices on Manufacturer Certified Remanufactured Products and Special End-of-Life Close-Out Deals!

brother
HL-630 Laser
300dpi, 6 ppm, straight paper path
1 Year Factory Warranty
Factory-Refurbished $229

Panasonic
KXL-720 2X Portable CD-ROM Drive
300KB/s data transfer rate with a 375ms access time. Drive includes compact AC adapter, SCSI PC Card interface.
KXL-D720-R $139
Factory-Refurbished - 2 Year Factory Warranty

TOSHIBA
Satellite Pro
Satellite Pro 415CS
Pentium 90, 810MB, 8MB
11.3" DS $1999

TOSHIBA ENCORE

While Supplies Last!

Notebook Computers

TOSHIBA
Portege 650CT, P133, 1.3GB $3863
Portege 660COT 11.3 Act, P150, 1.35GB, 10X CD $5118
Tecra 500CS, P120, 12.1" DS, 1.3GB $2901
Tecra 500COT, P120, 12.1" Act., 1.3GB $4171
Tecra 730CDT, P150, 12.1" Act., 2.0GB $5625
Satellite 110CS, P100, 11.3"DS, 810MB $1553
Satellite Pro 420COS, P100, 11.3" DS, 1.28GB .. $2139
Satellite Pro 420CDT, P100, 11.3" Act., 1.28GB .. $2943

OLIVETTI Echos
P100C, P100, 11.3" DS, 6X CD-ROM, 1.3GB $2052
P100E, P100, 10.4" Act., 6X CD-ROM, 1.3GB $2540
P120E, P120, 11.3" Act., 6X CD-ROM, 1.3GB $3522
P133S, P133, 11.8" Act., 6X CD-ROM, 1.3 GB $3604

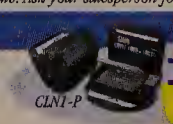
HEWLETT-PACKARD Omnibook 5500
5500CS, P100, 16MB, 1.3GB, 11.3" DS $2479
5500CT, P120, 16MB, 1.35GB, 10.4" Act., ... $3599
5500CT, P133, 16MB, 2.0GB, 12.1" Act. $4489
5500CT, P133, 16MB, 1.35GB, 12.1" Act. $4169
800CS, P100, 16MB, 810MB, 10" DS. $2769
800CT, P133, 16MB, 1.35GB, 10.4" Act. $3949

NEC
Versa 2400, P100, 11.3" DS, 810MB $1887
Versa 2400CD, P100, 11.3" DS, 1.0GB $2362
Versa 4200, P100, 10.4" Act., 810MB $2618
Versa 6000H, P100, 11.3" SVGA 1.08GB $3391
Versa 6030H, P133, 12.1" SVGA 1.35GB $4308
Versa 6030X, P133, 12.1" XGA 1.44GB $4639

IBM ThinkPad
365XD, P100, 10.4" DS, 810MB, 4XCD $2266
365XD, P133, 11.3" Act., 1.4GB, 6XCD $3380
365X, P133, 11.3" DS., 1.0GB $2422
365X, P120, 10.4"Act., 810MB $2457
560, P100, 11.3" DS, 810MB $2617
560, P120, 12.1" Act., 810MB $3724
560, P133, 12.1" Act., 1.08GB $4056
760ED, P133, 12.1" Act., 1.0GB, 6XCD $5794
760E, P150, 12.1" Act., 2.1GB $5505

AST Acentia Series
J30, P100, 10.4" DS, 800MB, 14.4 ..... $1610
J30, P100, 10.4" Act., 810MB $1705
J50, P133, 10.4" Act., 810MB $2118
P30, P100, 11.3" DS, 810MB, 4X CD $1989
P30, P100, 11.3" DS, 1.2GB, 4X CD $2226
P40, P120, 11.3" Act., 1GB, 28.8 ..... $3079
P40, P120, 11.3" Act., 2.1GB, 28.8 ..... $3458
P50, P133, 11.3" Act., 800MB, 4X CD $3221
P50, P133, 11.3" Act., 1.2GB, 4X CD $3458
P50, P133, 12.1" Act., 1.0GB, 6X CD $3694
P50, P133, 12.1" Act., 2.1GB, 6X CD $4074
A41, P120, 11.3" DS, 1.08GB, 6X CD $2392
A41, P120, 12.1" Act, 1.08GB, 6X CD $3061

HITACHI M & E Series
M 120T, P120, 11.8" Act., 1GB, 4X CD $3593
M 133T, P133, 11.8" Act., 1GB, 6X CD $4273
E 100O, P100, 11.3" DS, 810MB $1999
E 133T, P133, 11.3"Act., 810MB. $2999



CLN1-P

INSTANT $20 off this Targus leather bag with purchase of any notebook computer

TEXAS INSTRUMENTS
Extensa 600CD P120, 12.1" DS, 810MB, 6X CD $2208
Extensa 650COT P133, 11.3" Act, 2.1GB, 10X CD $3649
Extensa 650CO P133, 12.1" DS, 1.44GB, 10X CD $3168
TM 6020, P120, 11.3" Act., 1.08GB $3745
TM 6030, P133, 12.1" Act., 1.35GB $4274
TM 6050, P150, 12.1" Act., 1.35GB $4609

CANON
360CO, 5X86/133, 10.4"DS, 810MB $1929
475CDT, P100, 11.3" TFT, 810MB $2446
Notejet 111CX, P90, 11.8" Act., 810MB $4732
Notejet 111CX, P120, 11.8" Act., 1.2GB $5546

COMPAQ Armada & LTE Series
Armada 4110, P100, 11.3"DS, 810MB $2499
Armada 4120, P120, 11.3"DS, 1.08GB $2999
Armada 4120T, P120, 11.8"Act, 1.08GB $3699
Armada 4110O, P100, 11.3"DS, 810MB, CD $2879
Armada 4130T, P100, 11.8"Act, 1.08GB $4399
Armada 1120, P100, 10.4"DS, 810MB $1899
Armada 1120T, P100, 10.4"Act 810MB $2199
LTE 5150, P100, 11.3"DS, 810MB $2869
LTE 5250, P120, 10.4"Act, 810MB $3639
LTE 5280, P120, 11.3"Act, 1.3GB $4399
LTE 5300, P133, 12.1"Act, 1.3GB $4789
LTE 5380, P133, 12.1"Act, 2.16GB $5749

USA FLEX

444 Scott Drive
Bloomingdale, IL 60515
Phone: 630-582-6206
Fax: 630-351-7204
24 hours Mon.-Fri.
9AM-4PM(CT) Sat. & Sun.

1-800-876-5606

eral Express very Service Available — FedEx — No Surcharge On These Credit Cards

Code # WD0107 — Please reference this code when ordering.

Circle 231 on reader service card

PCs COMPLEAT®
A COMPUSA® COMPANY
800-210-8319

We Carry Over 30,000 Products! Call Today!

YULETIDE AND SHIPPED TO YOU

FUJITSU

FUJITSU PC CORPORATION

LifeBook™ 500

LifeBook™ Notebook

- Up to 150MHz Pentium processors
- 6X CD-ROM drive on most models
- Up to 12.1" displays
- 28.8 fax modem on select models

Model	CPU	Screen	RAM/HD	CD	Price
520D	120MHz	11.3" Dual Scan	8/810MB	6X	$2299
520T	120MHz	11.3" Active	8/810MB	6X	2799
530T	133MHz	11.3" Active	16MB/1.3GB	6X	3499 *
635T	133MHz	12.1" Active	16MB/1.3GB	Opt.	3999 *
555T	150MHz	11.3" Active	16MB/1.3GB	6X	4399 *

* Includes built-in 28.8 fax modem

UP TO 150MHz PROCESSORS

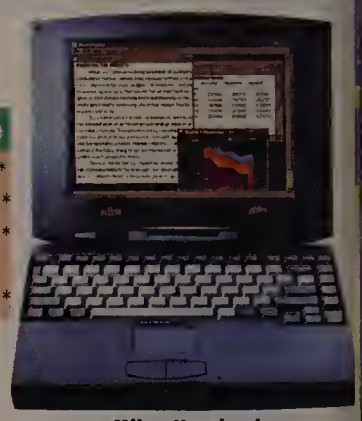
Get MS Office for only $99 with your Fujitsu LifeBook purchase. Call for details.

Milan Notebook

- Up to 133MHz Pentium processors
- Up to 11.3" Super VGA displays
- Built-in 16-bit SoundBlaster audio
- Only 1.7" thick and 5.9 lbs.

Model	CPU	Screen	RAM/HD	CD	Price
Milan	100MHz	10.4" Dual Scan	8/810MB	Opt.	$1799*
Milan	100MHz	10.4" Active	8/810MB	Opt.	1999 *
Milan	120MHz	11.3" Active	8MB/1.2GB	Opt.	2649 *
Milan	133MHz	11.3" Active	16MB/1.2GB	Opt.	2999
Milan	133MHz	11.3" Active	16MB/1.2GB	Opt.	3149 *

* Features 28.8 PCMCIA fax/modem



Milan Notebook

Engineered for Mobile Comfort

Models are available with Windows for Workgroups or Windows 95

TOSHIBA

GET $50 OFF ANY ACCESSORY OF $50 OR MORE WHEN YOU BUY A TECRA 500 Now through 12/96

Tecra 500CDT

CALL ABOUT TOSHIBA 110, 430, & 510

Tecra 500

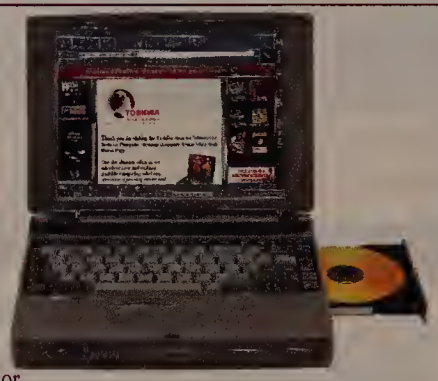
- Pentium 120MHz processor
- Built-in 28.8 fax modem
- Win for Workgroups or Win 95
- Built-in 6X CD-ROM drive on 500CDT

Model	CPU	Screen	RAM/HD	CD	Price
5000CS	120MHz	12.1" Dual Scan	16MB/1.2GB	Opt.	$2948
500COT	120MHz	12.1" Active	16MB/1.2GB	6X	4167

Satellite 200CDS

- Pentium 100MHz processor
- 11.3" Dual Scan display
- 6X CD-ROM drive
- Win for Workgroups or Win 95

Model	CPU	Screen	RAM/HD	CD	Price
200CDS	100MHz	11.3" Dual Scan	8/810MB	6X	$1978



Satellite 200CDS

Satellite Pro 420

Satellite Pro 420

- Pentium 100MHz processor
- Built-in 6X CD-ROM drive
- 11.3" Dual Scan & Active Matrix displays
- Built-in SoundBlaster Pro compatible audio

Model	CPU	Screen	RAM/HD	CD	Price
420COS	100MHz	11.3" Dual Scan	8/772MB	6X	$2148
420CDT	100MHz	11.3" Active	8MB/1.2GB	6X	2899

IBM®

IBM Business Partner

GET A FREE NOTEPAC CARRYING CASE WITH YOUR THINKPAD® PURCHASE. Now through 12/96 or while supplies lost.

ThinkPad® 365X & XD

- Pentium 120 and 133MHz processors
- Built-in CD-ROM drive on 365XD
- 10.4" & 11.3" SVGA displays
- 16-bit sound, speakers and microphone
- Infrared port for wireless communications
- External floppy drive on 365XD

Model	CPU	Screen	RAM/HD	CD	Price
365X	133MHz	11.3" Dual Scan	8MB/1GB	Opt.	$2499
365X	120MHz	10.4" Active	8/810MB	Opt.	2499
365XO	120MHz	10.4" Active	8/810MB	4X	2699
365XO	133MHz	11.3" Active	8MB/1.4GB	6X	3499

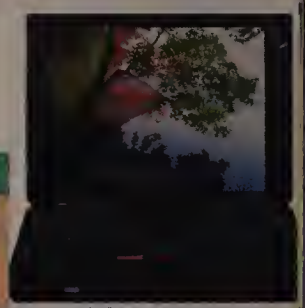
Additional models available. Call for details

ThinkPad® 760

- Up to 150MHz Pentium processors
- Built-in CD-ROM drives on 760ED
- 16-bit SoundBlaster compatible audio
- Built-in 28.8 fax modems on selected models
- 11.3" and 12.1" Super VGA displays

Model	CPU	Screen	RAM/HD	CD	Price
760EL	100MHz	11.3" Dual Scan	8/1810MB	Opt.	$3399
760ED	133MHz	12.1" Active	16MB/1.2GB	4X	5399
760E	150MHz	12.1" Active	16MB/2.1GB	Opt.	5799
760EO	133MHz	12.1" Active	16MB/2.1GB	6X	6299

Additional models available. Call for details.



ThinkPad® 760

COMPAQ

Armada

Compaq Armada

Model	CPU	Screen	RAM/HD	CD	Price
1120	100MHz	10.4" Dual Scan	8/810MB	Opt.	$1879
1120T	100MHz	10.4" Active	8/810MB	Opt.	2199
4110	100MHz	11.3" Dual Scan	8/810MB	Opt.	2479 *
41100	100MHz	11.3" Dual Scan	8/810MB	4X	2899 *
4120	120MHz	11.3" Dual Scan	16MB/1.1GB	Opt.	2999 *
4120T	120MHz	11.8" Active	16/810MB	Opt.	3699 *
4130T	133MHz	11.8" Active	16MB/1.1GB	Opt.	4399 *

* Features built-in audio

LTE 5000 Series

Model	CPU	Screen	RAM/HD	CD	Price
5150	100MHz	11.3" Dual Scan	8/810MB	Opt.	$2849
5250	120MHz	10.4" Active	16/810MB	Opt.	3599
5280	120MHz	11.3" Active	16MB/1.35GB	Opt.	4349
5200	120MHz	10.4" Active	8MB/1.35GB	Opt.	4720
5300	133MHz	12.1" Active	16MB/1.35GB	Opt.	4749
5380	133MHz	12.1" Active	16MB/2.2GB	Opt.	6299

PRESARIO NOTEBOOK AVAILABLE. CALL FOR DETAILS

LTE 5000 Series

© 1996 PCs Compleat. All prices and specifications subject to change and do not include shipping. All products or brand names are trademarks of their respective companies. PCs Compleat, 34 St. Martin Drive, Marlborough, MA 01752-3021. Phone (508) 624-6400. Not responsible for typographical errors. All trademarks and registered trademarks are the sole property of their respective owners. Lowest price guarantee applies to system purchases only.

ONLY at PCs COMPLEAT ✓ Lowest Price Guarantee ✓ 30-Day Money Back Guarantee ✓ Free Tech Support ✓ Free Software Installation ✓ Free Configuration

YEAR-END SAVINGS IN A FLASH!

CALL for Guaranteed Lowest Price on Systems* *Call for details

PCs COMPLEAT
A COMPUSA® COMPANY
800-210-8319

$50 INSTANT REBATE

Offer applies to any notebook computer from manufacturers listed on this page only.
1 modem or memory upgrade per notebook. Offers cannot be combined

U.S. Robotics 28.8 modem #001013-0B
List ~~$149~~ After Rebate $99*
*Factory refurbished. Call for details.

OR Save $50 on PNY 8 or 16MB memory upgrades

Offer ends 12/31/96 or while supplies last. PCs Compleat reserves the right to not combine this offer with other programs and discounts.

NEC

NEC Versa 6000

NEC Versa 6000

Model	CPU	Screen	RAM/HD	CD	Price
6010H	133MHz	11.3" Active	16MB/1.0BGB	6X	$3699
6030H	133MHz	12.1" Active	16MB/1.3GB	6X	4999
6030X	133MHz	12.1" Active	16MB/1.4GB	6X	5399

NEC Versa 4200

Model	CPU	Screen	RAM/HD	CD	Price
4200	100MHz	10.4" Active	B/810MB	Opt.	$2999
4230	133MHz	10.4" Active	BMB/1.0GB	6X	3B99

VALUE PRICED VERSA 2400 CALL FOR DETAILS.

CALL FOR FANTASTIC SAVINGS ON NEC FACTORY REFURBISHED PRODUCTS.

HITACHI MOBILIZED COMPUTING

Hitachi E™ Series Notebook

Hitachi E™ Series

Model	CPU	Screen	RAM/HD	CD	Price
E100D	100MHz	11.3" Dual Scan	16/B10MB	Opt.	$1799
E133DN	133MHz	11.3" Dual Scan	16/1.0BGB	Opt.	1999
E133T	133MHz	11.3" Active	16/B10MB	Opt.	2499*

* After $100 instant rebate

Hitachi M™ Series

Model	CPU	Screen	RAM/HD	CD	Price
M100D	100MHz	11.3" Dual Scan	B/B10MB	4X	$1999
M120T	120MHz	11.B" Active	16MB/1GB	4X	2999
M133T	133MHz	11.B" Active	16MB/1GB	6X	3499

NEW MODEL!!

Additional M™ series models available. Call for details.

TEXAS INSTRUMENTS

Extensa 600CD

Extensa 600

Model	CPU	Screen	RAM/HD	CD	Price
600CD	120 MHz	12.1" Dual Scan	B/B10MB	6X	$2249

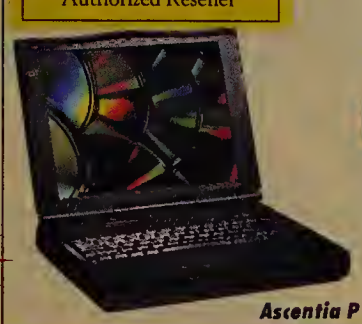
TravelMate 6000

Model	CPU	Screen	RAM/HD	CD	Price
6020	120MHz	11.3" Active	16MB/1.0BGB	6X	$3799
6030	133MHz	12.1" Active	16MB/1.35GB	Opt.	4299
6050	150MHz	12.1" Active	16MB/1.35GB	Opt.	4699

CALL ON NEW EXTENSA 650

AST®

Authorized Reseller


Ascentia P

AST Ascentia P

Model	CPU	Screen	RAM/HD	CD	Price
A40	120MHz	11.3" Dual Scan	16MB/1.0GB	6X	$2399
A40	120MHz	12.1" Active	16MB/1.0GB	6X	2999
P50	133MHz	12.1" Active	24MB/1.0GB	4X	3899
P50	133MHz	12.1" Active	24MB/2.1GB	4X	4299

AST Ascentia J

Model	CPU	Screen	RAM/HD	CD	Price
J30	100MHz	10.4" Dual Scan	B/B00MB	Opt.	$1699
J30	100MHz	10.4" Active	B/B00MB	Opt.	1799
J50	133MHz	10.4" Active Matrix	B/B00MB	Opt.	2249

AST, AST logo are trademarks of AST Research, Inc. All rights reserved.

Additional Ascentia J™ models available. Call for details.

SHARP®

Sharp WideNote

Sharp WideNote

Model	CPU	Screen	RAM/HD	CD	Price
W100D	133MHz	11.2" Wide Dual Scan	16MB/1.1GB	Opt.	$2999
W100T	133MHz	11.2" Wide Active	16MB/1.1GB	Opt.	3499

Sharp 3000 & 9000

Model	CPU	Screen	RAM/HD	CD	Price
3040	100MHz	12.1" Dual Scan	BMB/1.1GB	Opt.	$1599
9020	120MHz	12.1" Dual Scan	16MB/1.1GB	6X	2499
9050	133MHz	11.3" Active (SHA)	16MB/1.1GB	6X	2999
90B0	133MHz	12.1" Active (SHA)	16MB/1.3GB	6X	4499

Additional models available. Call for details.

olivetti personal computers

Olivetti Echos Series Notebook

Olivetti Echos

Model	CPU	Screen	RAM/HD	CD	Price
Echos	100MHz	11.3" Dual Scan	BMB/1.3GB	6X	$1999
Echos	100MHz	10.4" Active	BMB/1.3GB	6X	2599
Echos	120MHz	11.3" Active	BMB/1.3GB	6X	2999
Echos	133MHz	11.B" Active	16MB/1.3GB	6X	3499
Pro	133MHz	12.1" Dual Scan	16MB/1.3GB	BX	3499
Pro	133MHz	12.1" Active	16MB/2GB	BX	3999
Pro	150MHz	12.1" Active	16MB/2GB	BX	4999

6X CD-ROM

digital™

Special Buy!

Digital Ultra II with external Floppy Dock

NEW MULTIMEDIA HiNOTE VPs

Digital HiNote VP & VP 500

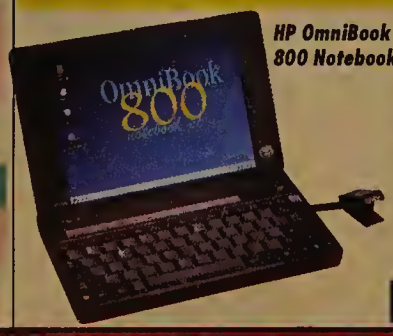
Model	CPU	Screen	RAM/HD	CD	Price
HiNote VP	120MHz	11.3" Dual Scan	B/1.0BMB	Opt.	$1799
VP 500	120MHz	11.3" Dual Scan	BMB/1.0BGB	6X	2449
VP 500	133MHz	12.1" Active	BMB/1.44GB	6X	3599

Digital Ultra

Model	CPU	Screen	RAM/HD	CD	Price
Ultra II	133MHz	11.3" Active	16MB/1.35GB	Opt.	$4499
Ultra II	150MHz	11.3" Active	16MB/1.44G	Opt.	4799

Additional models available. Call for details.

HEWLETT® PACKARD


HP OmniBook 800 Notebook PC

HP OmniBook 800

Model	CPU	Screen	RAM/HD	CD	Price
B00CS	100MHz	10" Dual Scan	16/B10MB	Opt.	$2999
B00CT	133MHz	10.4" Active	16MB/1.4GB	Opt.	4279

HP OmniBook 5500

Model	CPU	Screen	RAM/HD	CD	Price
5500CTS	120MHz	10.4" Active	16MB/1.35GB	Opt.	$3B99
5500CTS	133MHz	12.1" Active	16MB/1.35GB	Opt.	4519
5500CTS	133MHz	12.1" Active	16MB/2GB	Opt.	4B59

Additional 5500 models available. Call for details.

More Brand Names, Peripherals and Software available. If you don't see it, CALL!

International: 508-624-6400
Email: sales@pcscompleat.com
Visit us at www.pcscompleat.com
Open 7am-Midnight weekdays. 8am–8pm weekends and holidays.

800-210-8319

Circle 129 on reader service card

PCs COMPLEAT

A COMPUSA® COMPANY

800-210-8319

CALL for Guaranteed Lowest Price on Systems*

*Call for details

Call for a FREE PRODUCT GUIDE

COMPLEAT SHOPPING

IBM®

IBM Business Partner

IBM Aptiva S Series

- Up to 200MHz Pentium processors
- Place tower up to 6ft. away
- 28.8 data/fax/voice modem with telephony
- Cordless mouse
- Integrated audio on optional monitor

Model	CPU	RAM/HD	CD	Price
S64	166MHz	16MB/2.5GB	8X	$2249
S66	166MHz	16MB/3.2GB	8X	2399
S74	200MHz	16MB/2.5GB	8X	2399
S78	200MHz	16MB/3.5GB	8X	2699

Aptiva S Series Monitors

Model	Size	View	Resolution	Price
MM50	15"	13.7"	1024 x 768	$499
MM70	17"	15.7"	1024 x 768	799

Additional models available. Call for details.

Monitors priced separately

IBM Aptiva S Multimedia

Get a FREE Canon Color Printer* with the purchase of any IBM Aptiva computer.

* Factory refurbished printer with a 1-year warranty. Now through 12/96 or while supplies last

COMPAQ

6X CD-ROM

ULTRA FAST 33.6 SPEED DATA/FAX MODEM

We are Compaq Authorized

Compaq Presario Multimedia

Presario Multimedia

- 6X CD-ROM drive
- 3D surround sound with JBL Pro speakers
- Tons of FREE educational and business software
- 33.6 data/fax/modem
- Up to 2.5GB hard drives

UP TO 166MHz

Model	CPU	RAM/HD	CD	Price
4704	133MHz	16MB/1.6GB	6X	$1599
4712	166MHz	24MB/2.5GB	6X	1899
4716	200MHz	32MB/2.5GB	8X	2199

Presario Monitors

Model	Size	View	Resolution	Price
Presario	14"	12.9"	1024 x 768	$399
Presario	15"	13.5"	1024 x 768	499
Presario	17"	15.6"	1280 x 1024	749

TOSHIBA

Toshiba Infinia Multimedia

- Up to 200MHz Pentium processors
- 8X CD-ROM drive
- 28.8 full duplex data/fax modem
- 2MB EDO video RAM
- Tons of FREE software

PC MAGAZINE EDITORS' CHOICE

Model	CPU	RAM/HD	CD	Price
7130	133MHz	16MB/1.6GB	8X	$1599
7160	166MHz	16MB/2.1GB	8X	1799
7200	200MHz	16MB/3.0GB	8X	2799

Infinia Monitors

Model	Size	View	Resolution	Price
Infinia	15"	13.78"	1280 x 1024	$459
Infinia	17"	16.23"	1280 x 1024	759

8X CD-ROM

UP TO 200MHz PENTIUM

3-D Surround Sound

InTouch™ Module. Jump from CD to TV to radio to answering machine, each with the touch of a button.

Standard on select models.

Toshiba Infinia Multimedia

SONY®

VAIO Multimedia

- Up to 200MHz Pentium processors
- Over 30 pre-installed software titles
- 28.8 fax modem with speaker phone allows simultaneous voice & data communications
- 16-bit wavetable stereo sound with optional speakers
- 3D accelerated graphics with MPEG support

Model	CPU	RAM/HD	CD	Price
VAIO	166MHz	32MB/2.1GB	8X	$2299
VAIO	200MHz	32MB/2.5GB	8X	2599

VAIO Monitor

Model	Size	View	Price
VAIO	15"	13.9"	$579

8X CD-ROM

UP TO 200MHz PENTIUM

VOICE RECOGNITION!

AST®

Authorized Reseller

Advantage Adventure Multimedia

Model	CPU	RAM/HD	CD	Price
9304	133MHz	24MB/1.6GB	8X	$1599*
9308	166MHz	24MB/2.5GB	8X	1899*
9310	166MHz	24MB/2.5GB	8X	2199*
9312	166MHz	24MB/2.5GB	8X	2299
9315	166MHz	32MB/2.5GB	8X	2399*
9314	200MHz	24MB/4.0GB	8X	2299
9316	200MHz	32MB/3.0GB	8X	2699

* Features a 33.6 data/fax/voice modem

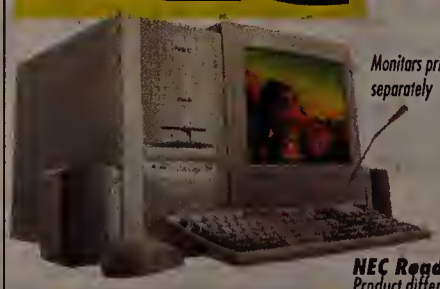
Monitors priced separately

AST Advantage Multimedia

Product differs slightly from photo

AST, AST logo are trademarks of AST Research, Inc. All rights reserved.

NEC



Monitors priced separately

NEC Ready Multimedia

Product differs slightly from photo

Ready Multimedia

Model	CPU	RAM/HD	CD	Price
7622	120MHz	16MB/1.6GB	8X	$1599
9620	133MHz	16MB/1.6GB	8X	1699
9624	133MHz	16MB/2.0GB	8X	1899
9622	166MHz	16MB/2.5GB	8X	2099
9628	166MHz	32MB/3.2GB	8X	2599
9629	200MHz	32MB/3.2GB	8X	2699

Monitors priced separately

Additional models available. Call for details.

PCW 1/97

ONLY at PCs COMPLEAT ✓ Lowest Price Guarantee ✓ 30-Day Money Back Guarantee ✓ Free Tech Support ✓ Free Software Installation ✓ Free Configuration

YOUR AND SAVE!

3 YEAR 5 YEAR SERVICE PLANS — AVAILABLE ON ALL COMPUTER SYSTEMS

REPLACEMENT SERVICE PLAN — AVAILABLE ON MOST PERIPHERALS — CALL TODAY FOR DETAILS & PRICING!

PCs COMPLEAT® A COMPUSA® COMPANY 800-210-8319

Sizzling Savings

Save BIG with Some of the Lowest Prices You'll Find!

We Carry Over 30,000 Products! Call Today!

FACTORY REFURBISHED

FR

FACTORY REFURBISHED - Like New! These items have been thoroughly examined and qualified by the manufacturer as being in perfect working order. Each product comes in new, clean packaging with all accessories. The only difference is YOU PAY LESS!

Manufacturer warranties vary on Factory Refurbished products, ask for details. *Products may differ slightly from photograph shown.*

UNBELIEVABLE PRICES ON Toshiba Refurbished Notebooks

TOSHIBA ENCORE

HP Pavilion Multimedia

PRODUCT	PART #	PRICE
Pentium 90, 8MB, 1.2GB, Pavilion 7030	7030	$ 899
Pentium 120, 16MB, 1.6GB, Pavilion 7055	7055	1299
Pentium 133, 16MB, 1.6GB, Pavilion 7125	7125	1449

Monitors priced separately

FR

as low as $899

Call on All NEW HP Multimedia

NEC Versa 2205C & 4050H

FR

10.4" Active Matrix $1499

9.5" Active Matrix $1699

FR

Product shown with optional CD
PC-6110-71602-R
DESCRIPTION
Pentium 90, 8MB, 810MB

Product differs from photo
PC602011602MX-R
DESCRIPTION
Pentium 75, 8MB, 810MB

Toshiba Satellite 105CS & Satellite Pro 405CS

$999 FR

$1099 FR

Satellite 105CS
PA1217U-S6WB
DESCRIPTION
Pentium 75, 8MB, 504MB

Product differs from photo
PA1207U-S6WB
DESCRIPTION
Pentium 75, 8MB, 772MB

Canon BJC-4100 & BJC-210 Color Printers

ONLY $99 — Q30-1760-US1-FR BJC-210

FR

ONLY $169 — Q30-1750-USI-FR BJC-4100

BJC-210

Digital Venturis Desktop 133MHz Pentium Processor for ONLY $999

This product is BRAND NEW!

Monitors priced separately

PRODUCT	PART #	PRICE
Pentium 133, 16MB, 845MB	FR-928AA-BR	$ 999

HIVAL 10X SPEED CD-ROM

$189

Basic PCS10A-00R2 . . $ 159.00
Multimedia PCS10A-01R6. . . . 249.00

HIVAL 8X SPEED CD-ROM

$119 PCS8A-00

Basic w/ Comptons CD PCS8A-36R2. $129.00
Multimedia PCS8A-01R6. . 189.00

Goldstar 17" Monitor

ONLY $549

- 17", 1280x1024ni, .28mm (15.7" viewable)
- Manual Power, Brightness, Contrast and Degaussing Controls

MEMORY BLOWOUT!

Generic 4MB Memory Upgrade
2X32, 72pin non-parity
$29.99
322-0060

4MB Only $29.99

VisionTek 8MB Memory Upgrade
2x32pin non-parity
$69.00
15115.0

Generic 16MB Memory Upgrade
4x32, 72pin parity
$149.00
322-0002

Western Digital 1.6GB Hard Drive

ONLY $199.99*

Quick Install

While supplies last

*After $30 mail-in rebate

1600RTL

Call for details!

Megahertz U.S. Robotics

The Intelligent Choice in Information Access

XJACK 10BaseT LAN Adopter
$99 #XJ10BTB FR

28.8 PCMCIA fax/modem #001013-0B
$149 #001013-0B FR

New Media WinSurfer 28.8 Fax/Modem

$20 Instant Rebate!

Before Rebate: $179.00
After: $159.00

NMC01010 While supplies last.

Verbotim 3.5" Diskettes

25 Pack 0.99¢* *AFTER REBATE

Limit 5 per customer #90734

Holiday Special!

ACT! 3.0 & WinFaxPRO 7.5 ONLY $199.99!

SAVE '90

*Offer valid from 11/1/96 to 1/31/97
Part # 06-00-00532 CD only

Iomega Zip™ Drive

Buy and Receive - 2 Great offers

Zip™ Drive Offer
$50 Rebate
OR
FREE "Game Pack-to-Go"
Contains: Deluxe Zip Drive Carrying Case & Iomega Game Pack Bundle

OR

Zip™ Disk Offer
$20 Rebate
OR
FREE "Net Stuff Organizer"
Contains: 2 Zip disk holders, Offline Web browser & multimedia organizer

Offer valid through 1/31/97

ONLY $199.95

Buy HeadStart Versions Now and Get Final Version for Free

$49.99
– $10.00 Mail-in rebate
$39.99 After rebate

Intuit TurboTax DELUXE 96 Headstart for Windows
#211189

$39.99 *Mail-in rebates good through 1/31/97

Diamond 33.6 Fax/Modem

ONLY $99

Internal #90540006-001
External #90540008-001

$99.00

Microsoft Internet Explorer 3.0 FREE*

With purchase of a NEW* computer system.

While supplies last. Valid 11/18/96-1/31/97

* Does not include factory refurbished, clearance or demo computers.

Prices and rebate offers valid while supplies last. Limited Time Offer.

More Brand Names, Peripherals and Software available. If you don't see it, CALL!

International: 508-624-6400
Email: sales@pcscompleat.com
Visit us at www.pcscompleat.com
Open 7am-Midnight weekdays. 8am–8pm weekends and holidays.

800-210-8319

Circle 129 on reader service card

BEST Service! LOWEST Prices!

CALL FOR FREE CATALOG!

LOWEST PRICES!
SUPER SERVICE!
FASTEST DELIVERY!

FREE Technical Support!

FREE System Customization Overnight!

FREE Catalog Subscription!

FREE Memory Installation Offer!

MORE Exciting Bundles!

MORE Hot New Products!

ALWAYS Available! Knowledgeable Sales Reps.

ALWAYS Open! 24 Hrs. a Day

TurboTax Deluxe

The Easiest Way to Do Your Taxes

ONLY! $39.95*

Get Ready for 1997 today!

New TurboTax 96 Deluxe Headstart—helps you make sense of your taxes.

*price after $10 mail-in rebate

33956

Hot New prices on Kodak CDR74 Media!

33866

100 PACKS AS LOW AS $7.99 PER DISK!

Huge Hard Drives from Western Digital!

SAVE $30

Caviar 2.1GB IDE Int. Drives give you big hard drive space without the big price.

ONLY! $269.95*

27883

*price after $30 mfr's. rebate - expires 12/31/96

Microsoft Encarta 97 Deluxe

NEW VERSION!

The leading multimedia encyclopedia, now an exciting deluxe edition updated for 1997!

30551 ONLY! $64.95

MDS

FREE Bodyworks software $39.95 value

The MDS 8X IDE CD-ROM drive provides sizzling speed, and dependable performance at a low, low price.

ONLY! $99.95

32839

33934 MDS 8X IDE CD w/Bodyworks $119.95

ONLY! $249.95*

FREE SOFTWARE $249 VALUE!

24686

Limited Time Low Price on Visioneer PaperPort Vx—the award-winning paper management system.

*price after $30 mfr's. mail-in rebate - exp. 12/31/96

Eudora Pro 3.0

NEW VERSION 3.0!

The World's Most Powerful E-mail Strikes Again!

UPGRADE FOR ONLY! $34.95

32382

Hot New Compaqs!

COMPAQ

AS LOW AS $1099

LEASE FOR $38.15† PER MONTH

Monitor sold separately

31558

Compaq Presario
- Up to 200MHz Pentium Processor
- Up to 8X CD-ROM
- 33.6 DSVD Faxmodem
- Up to 6MB of VRAM
- Some models include 3D graphics and gamepad

FREE! Lexmark Color Printer with Presario

Item #	Processor	Model	RAM/HD	CD-ROM	Price
34315	Pentium/120	4112	16MB/1.6GB	6X	$1399
34343	Pentium/133	4704	16MB/1.6GB	6X	1599
34318	Pentium/150	4122	16MB/2.5GB	8X	1495*

* With $100 rebate ** Includes 15" monitor and $200 rebate

Compaq DeskPro 2000
- Up to 200MHz Pentium Processor
- 8X CD-ROM on some models
- Windows 95, 3.1 and DOS
- Up to 2MB of VRAM

LEASE FOR $48.56† PER MONTH

AS LOW AS $1399

Item #	Processor	Model	RAM/HD	Price
31558	Pentium/100	5100	8MB/1.2GB	$1099
31559	Pentium/100	5100	16MB/1.2GB	1249
31560	Pentium/120	5120	8MB/1.2GB	1149

34315

Monitor sold separately

Hot New Navigation Bundle from Delorme!

NEW!

Never Get Lost Again!

Street Atlas USA

Tripmate

ONLY $159.95

Combine new Street Atlas 4.0 with the TripMate GPS receiver and your PC to help you find your way—anywhere!

33900

DELORME

Introducing the Feature-Packed, High Performance, Value-Oriented SENS PRO 500 Series!

AS LOW AS $1899

LEASE FOR $65.92† PER MONTH

- 100 or 120MHz Pentium Processor
- 11.3" or 12.1" SVGA Screen
- 8 or 16MB EDO RAM
- Optional 6X CD-ROM
- NiMH Battery (3-hour life)

34103

SAMSUNG

Item #	Processor	Model	RAM/HD	Price
34104	Samsung 120	SF12136VT-N	16MB/1.44GB	$2999

Always Look Your Best with Epson Quality!

The Epson Stylus Color 500 Printer features:
- Dazzling 720 dpi color on plain paper
- Black & white text printing at up to 4ppm
- A 100 sheet universal paper tray

NEW!

FREE! "Look Your Best Color Pak" including Adobe PhotoDeluxe and more!

ONLY $279

EPSON

31821

Inteva Desktops: The Value Leader in Personal Computing!

- Up to 200MHz Cyrix Processor
- Up to 32MB RAM
- 33.6 Faxmodem on some models
- Altec Lansing Speakers on some models
- Up to 2.5GB HD

AS LOW AS $799

26169

Monitor sold separately

Multimedia Models include COREL WORDPERFECT SUITE!

Item #	Model	RAM/HD	Price
26169	AMD 5X86-133	8MB/850MB	$799
32953	AMD K5-100	8MB/850MB	999
30476	CYRIX P150+	16MB/2GB	1199
31853	CYRIX P200+	32MB/2.5GB	1699

AcerNote Light—The Perfect Traveling Companion!

LEASE FOR $55.47† PER MONTH

AS LOW AS $1598

29151

New High-Speed Pentium Models!
- Low voltage 100 or 120MHz Pentium Processors
- 8 or 16MB expandable EDO RAM
- 10.4" dual-scan or active matrix display
- Windows 95 pre-installed

Acer

Item #	Processor	Model	RAM/HD	Price
29152	AcerNote Light	361	8MB/810MB	$1798
30155	AcerNote Light	359	16MB/810MB	1798
32508	AcerNote Light	363	16MB/1.0GB	2098
33495	AcerNote Light	372	16MB/1.0GB	2398

GET OVER 10,000 HOT PRODUCTS 24 HOURS A DAY!

Toshiba Satellite—The World's Best Selling Portable!

AS LOW AS $1898

LEASE FOR $65.89† PER MONTH

30435

AS LOW AS $2449

LEASE FOR $85.01† PER MONTH

AFFORDABLE PENTIUM PERFORMANCE!

Satellite 110CS & 110CT
- 8MB EDO RAM, exp. to 40MB
- 11.3" 800x600 color display
- 772MB HD
- Integrated AC Adapter

TOSHIBA

Item #	Model	RAM/HD	Price
30436	Satellite 110CT	8MB/772MB	$2398
30438	Satellite Pro 420CDT	8MB/1.2GB	3298
30440	Tecra 500CS	16MB/1.2GB	3549

Satellite Pro 420CDS
- 100MHz Pentium Processor
- 8MB EDO RAM, exp. to 40MB
- 11.3" 800x600 color display
- 6X CD-ROM

POWERFUL MOBILE MULTIMEDIA!

30437

LEASE YOUR COMPUTER EQUIPMENT — SAVE YOUR CAPITAL! CALL TO SEE IF YOU QUALIFY

OUR POLICY • VISA, MASTERCARD, AMERICAN EXPRESS, and NOVUS cards. No surcharge. • Most products are covered by manufacturer's warranty against defects for at least 30 days from the invoice date. • All returns require prior authorization; please call for an RMA • We are not responsible for typographical errors. • Pricing and promotions are subject to change without notice. **Continental U.S.:** Shipping Charges: $5 per order up to 10 pounds. On orders weighing 10 pounds or more, shipping is $1 per pound. Please call for weight/shipping charge information. Items of excessive size and/or weight may require additional days to deliver via a freight carrier. Please check with your sales rep for more details. Barring events beyond our control, all credit card orders phoned in weekdays by a.m. ET will ship Airborne Express for delivery the next business day. Saturday delivery available to many ar upon request at no additional charge. Order all day Saturday thru noon Sunday for Monday delivery. Some ar require an extra day delivery. **APO/FPO, International orders and Hawaii, Alaska, Canada, Puerto Rico U.S. Virgin Islands:** Shipping may require additional time and charges. All other areas: Call 603-446-0003 FAX 603-446-7791 M-F 9 a.m.-5:30 p.m. ET.

©1996 PC Connection, Inc., Marlow, NH. PCConnection & the raccoon characters are registered trademarks of PC Connection, Inc.
All other trademarks remain the property of their respective companies.

PC WORLD WORLD CLASS 1996 · 1995 · 1994 · 1992 · 1991 · 1990

VOTED BEST MAIL-ORDER!

"Best Mail-Order Company!"

BCS THE BOSTON COMPUTER SOCIETY

EVERYTHING OVERNIGHT $5! (UP TO 10LBS)

HOT DEALS ON SYSTEMS! CALL: 800-800-CPUs(2787)!

SERVICE • SAVINGS • SELECTION!

- FREE Technical Support
- FREE System Customization
- More Hot New Products
- More Systems
- FREE Memory Installation
- FREE Catalog Subscriptions
- More Bundles
- Save Up To 60% Off Retail

Two Hot Products from US Robotics!

The handy Pilot 5000 organizer stores over 1,000 records in the palm of your hand.

Get a FREE leather carry case with purchase of a Pilot. While supplies last!

Call for NEW Low Price

28378

27821

ONLY $99.95*

Finally, a Plug and Play Modem for Windows—the Sportster Winmodem 28.8!

FREE Internet Connection Kit!

US Robotics — The Intelligent Choice in Information Access

*after $20 mail-in rebate - expires 12/31/96

Choose Samsung for Pentium Power at Affordable Prices!

- Samsung SENS 810 Series
- Up to 2.1GB Hard Drive
- Fast, removable CD ROM Drive
- 100, 120 or 133MHz Pentium Processor
- High-speed 8 or 16MB EDO RAM
- 28.8 Faxmodem on some models
- SoundBlaster 16 with integrated microphone & speakers
- 800x600 SVGA Display

AS LOW AS $2499 — LEASE FOR $86.75† PER MONTH

30780

Item #	Processor	Model	RAM/HD	Price
80	Pentium/100	SENS 810 P-100	8MB/810MB	$2499
81	Pentium/100	SENS 810 P-100	8MB/1.3GB	2699
14	Pentium/120	SENS 810 P-120	8MB/1.3GB	2799
82	Pentium/120	SENS 810 P-120	16MB/1.3GB	2999
13	Pentium/133	SENS 810 P-133	16MB/1.3GB	3599
15	Pentium/133	SENS 810 P-133	8MB/2.1GB	3999
83	Pentium/133	SENS 810 P-133	16MB/2.1GB	4199

SAMSUNG

Powerful Hitachi Computing!

- Powerful Pentium Processors
- Large, full color displays & full size keyboards
- Choice of Win 95 or Win for Workgroups

AS LOW AS $1799 — LEASE FOR $62.45† PER MONTH

Hitachi E-Series
- 28.8 faxmodem

31922

AS LOW AS $2699 — LEASE FOR $93.69† PER MONTH

30235

Hitachi M-Series
- 8 or 16MB EDO RAM
- Removable CD-ROM
- Fixed floppy drive
- Built-in 28.8 Kbps V.34 Faxmodem

Item #	Processor	Model	RAM/HD	Price
1923	Pentium/100	E-P 100 D	16MB/810MB	$2599
1238	Pentium/120	M-120T	16MB/1GB	3699
1239	Pentium/133	M-133T	16MB/1GB	3999
1240	Pentium/133	M-133T	16MB/1GB	4399

Microsoft/Connectix Bundle!

Get RAM Doubler for only $10 when you purchase Microsoft Office 95 Upgrade!

SAVE UP TO $84.95

ONLY $209.95*

34556

*after $40 rebate for Microsoft Office owners

More Freedom to CREATE!

The premier 32-bit graphics application for Windows 95 is more powerful and easier to use than ever.

Upgrade Only $239.95

33999

NEW VERSION 7.0!

NEW IBM Aptivas!

Treat yourself to the latest in video, dynamic sound, and fast, fun communications! IBM's New Aptiva Courageous Line makes it an affordable reality for your Entire Family!

All IBM Aptiva Courageous Models Feature:

- Plug & Play setup
- 28.8 modem
- 2MB Video Memory
- TheatreSound, 16-bit CD Quality
- Fun software for the kids
- Total Image Video Bonus Pack
- Limited 3-year warranty
- Award-winning on-line support

34501

AS LOW AS $1598 — LEASE FOR $55.47† PER MONTH

Item #	Processor	Model	Price
34501	IBM Aptiva P133-16/1.2T	2176-C32	$1598
34502	IBM Aptiva P133-16/1.6	2176-C33	1798
34509	IBM Aptiva P150-16/2.0	2159-C55	1798
34511	IBM Aptiva P166-16/2.0G	2176-C65	2099
34512	IBM Aptiva P166-16/2.5G	2176-C67	2099
34514	IBM Aptiva P200-32/3.2G	2176-C77	2599

IBM

Monitors sold separately

IBM Aptiva Stealth...The Age of the Bulky Minitower is Over!

All Aptiva Stealth Models Feature:

- Pentium Processors w/speeds from 166MHz to 200MHz
- 2.5-3.2GB HD
- 8X CD-ROM Drives
- TheatreSound & Wavetable Sound Card
- 3D Graphics co-processor for Mind-Blowing Gaming Action
- Total Image Video for Full-Screen, True-to-Life Action
- 3-year Limited Warranty

AS LOW AS $2249 — LEASE FOR $78.07† PER MONTH

32311

Item #	Model	IBM Part #	Price
34517	IBM Aptiva P133-16/2.5	2159-S64	$2249
34518	IBM Aptiva P133-16/3.2	2159-S66	2399
34519	IBM Aptiva P200-16/2.5	2159-S74	2549

TravelMate 6000 Notebooks

- 120, 133, or 150MHz PentiumProcessor
- 8 or 16MB EDO RAM, exp. to 72MB
- 1.08 or 1.35 GB Hard Disk Drive
- 3D spatial sound, stereo speakers
- 28.8 Kbps fax/data/speaker phone modem
- 2MB VRAM

ONLY $3698 — LEASE FOR $128.37† PER MONTH

30120

TEXAS INSTRUMENTS

Item #	Processor	Model	RAM/HD	Price
30121	Pentium/133	6030	16MB/1.35GB	$4198
33131	Pentium/150	6050	16MB/1.35GB	4498

FREE! MEMORY INSTALLATION!

1MB SIMMS as low as $19.95

SUPER SIMMS PRICES

4MB	8MB	16MB	32MB
as low as $29.95	as low as $59.95	as low as $129.95	as low as $249.95

Purchase a computer & memory upgrade together and we'll install your new memory upgrade at no extra charge!

FREE! CATALOG SUBSCRIPTION!

CALL TODAY!

(Mention source code 197PCW)

☐ PC Connection ☐ MacConnection

Please check the catalog(s) you wish to receive

Name _____

Address _____ Apt ____

City _____ State _____ Zip _____

PC Connection — 8MB RAM FREE! — 800-800-55

† Leasing option available to businesses. CALL 800-800-0014 to see if you qualify

PC Connection®

SOURCE CODE 197PCW

800-998-0017

Circle 165 on reader service card

Order as late as 3 a.m. ET and *still* get Overnight Delivery!

FAX US AT: 603-446-7791

CDW® CIRCLE OF SERVICE

COMPUTER DISCOUNT WAREHOUSE™

U.S. Robotics® Sportster Winmodem 33.6

Upgrade your new Sportster 33.6 to 56K bps x2 Technology!*

The faxmodem made especially for Windows-based PCs

■ 33.6K bps data ■ V.17 Group III 14,400 and 9,600 bps Class 1 and Class 2 send/receive fax ■ 115,200 bps maximum throughput ■ True ITU-T V.34 at 28,800 bps ■ V.32 {bis} at 14,400 bps ■ V.42/MNP 2-4 error control ■ V.42 {bis}/MNP 5 data compression ■ 5-year parts/labor warranty

$114.93 CDW 65767

**Available 1/97. Supported by major Internet providers. Call 1-800-525-USR1 for more info.*

WHY PAY RETAIL?

CDW® Sells For Less!™

EPSON® Stylus Color 500

Includes: Look Your Best Color Pak, a $299 value!

Award-winning photo quality color printing

▲ 720 x 720 dpi black and color ▲ Up to 4 ppm black, 720 x 360 dpi plain paper ▲ ESC/P 2 and IBM® X24/X24E emulation ▲ 4 scalable and 5 letter-quality built-in fonts ▲ "Look Your Best Color Pak" includes full version of Sierra® Print Artist™ V3.0 and Adobe® PhotoDeluxe™ for PC, Adobe HomePublisher™ V2.1 and Adobe PhotoDeluxe for Macintosh®, FUNTASTIC Fonts and more! ▲ 2-year limited warranty

$279.00 CDW 73069

HARDWARE, SOFTWARE & PERIPHERALS AT DISCOUNT PRICES

SOFTWARE

Adobe PageMaker V6.0 WIN 3.5/CD	547.74
Adobe PageMaker V6.0 WIN upg 3.5/CD	132.81
Adobe Photoshop V3.0.5 WIN 3.5/CD	545.78
Adobe Photoshop V3.0.5 WIN upg	159.55
Arcada Backup for Windows 95	56.52
Caere OmniPage Pro V7.0 WIN95 vers upg	113.65
Claris FileMaker Pro V3.0 WIN/95/NT CD	176.80
Corel Office Professional V7.0 WIN95 comp\vers upg	187.32
Corel WEB.GRAPHICS Suite WIN/95/NT	186.35
Corel WordPerfect Suite V7.0 WIN95 CD	241.34
Corel WordPerfect Suite V7.0 WIN95 upg 3.5/CD	133.70
Corel WordPerfect Suite V7.0 WIN95 upg CD	89.87
Corel WordPertect Suite WIN 3.5/CD	272.17
Corel WordPertect Suite WIN CD	239.95
Corel WordPerfect Suite WIN upg 3.5/CD	133.70
Corel WordPerfect Suite WIN upg CD	91.77
CorelDRAW! V5.0 to V6.0 WIN95 upg CD	178.20
CorelDRAW! V6.0 WIN95 CD	421.73
Datastorm Procomm Plus V3.0 WIN/95	124.11
Datastorm Procomm Plus V3.0 WIN/95 CD	124.11
Delrina WinFAX PRO V7.0 WIN95 CD	76.84
Helix Hurricane V2.0 WIN/95	43.30
Intuit Quicken Deluxe V5.0 WIN CD	59.99
Lotus 1-2-3 V5.0 WIN	295.75
Lotus 1-2-3 V5.0 WIN spec upg	93.15
Lotus cc:Mail Mobile V6.0 WIN	126.00
Lotus Organizer 97 WIN95 CD	71.63
McAfee VirusScan V2.0 WIN95	44.25
McAfee VirusScan V2.2 WIN	44.85
MS Access V2.0 WIN	298.04
MS FrontPage V1.1 WIN95	137.34
MS MS-DOS V6.22 upg	49.88
MS Office Pro w/Access WIN95 upg	314.50
MS Office Pro WIN95 CD w/Bkshelf	544.30
MS Office Pro WIN95 upg CD w/Bkshelf	317.41
MS Office Pro V4.3 WIN	535.47
MS Office Pro V4.3 WIN CD w/Bkshelf	443.49
MS Office Pro V4.3 WIN upg	354.25
MS Office Pro WIN95	539.03
MS Office Std WIN95	454.43
MS Office Std WIN95 CD	453.30
MS Office Std WIN95 upg	223.97
MS Office Std WIN95 upg CD	226.13
MS Office V4.2 WIN	449.03
MS Office V4.2 WIN upg	268.36
MS Plus! WIN95 CD	45.46
MS Project V4.0 WIN	414.42
MS Project V4.1 WIN95 CD	421.73
MS Publisher V2.0 WIN	69.29
MS Visual Basic Pro V4.0 WIN/95/NT CD	443.49
MS Visual Basic Pro V4.0 WIN95/NT comp upg CD	219.18
MS Visual Basic Pro V4.0 WIN95/NT vers upg CD	86.33
MS Visual C++ Subscription WIN95	447.93
MS Visual J++ WIN95/NT	84.51
MS Windows 95	183.47
MS Windows 95 upg	94.77
MS Windows 95 upg CD	94.77
MS Windows 95 w/Internet Explorer upg CD	97.69
MS Windows NT Workstation V4.0 1-user upg CD	239.49
MS Windows NT Workstation V4.0 CD	283.20
MS Windows V3.11	92.06
MS Windows V3.11 license	78.51
MS Word V6.0 WIN upg	115.55
MS Word V7.0 WIN95 upg	55.75
MS Works V3.0 WIN	45.46
MS Works WIN95	45.46
MS Windows NT Workstation V4.0 vers upg CD	133.53
NewSoft ViewOffice PowerSuite WIN CD	48.21
Ouarterdeck OEMM V8.0 WIN/95	62.16
Stac ReachOut V6.0 WIN95	121.33
Symantec ACT! V2.0 WIN	171.24
Symantec Norton AntiVirus V2.0 WIN95	65.91
Symantec Norton AntiVirus V3.0 DOS/WIN	48.08
Symantec Norton AntiVirus WIN95 trade-up	33.99
Symantec Norton NT Tools V1.0 WIN NT CD	45.32
Symantec Norton Utilities V8.0 DOS/WIN	114.77
Symantec Norton Utilities WIN95	116.15
Symantec Norton Utilities WIN95 trade-up	55.15
Symantec pcANYWHERE V2.0 WIN	119.83
Symantec pcANYWHERE V5.0 DOS	121.17
Symantec pcANYWHERE V7.5 WIN95/NT upg	81.79
Symantec pcANYWHERE32 V7.5 WIN95/NT	131.24
Symantec WinFAX PRO V4.0 WIN	78.14
Visio Technical V4.1 WIN/95/NT	256.28
Visio V4.0 WIN 3.5/CD	131.97

NETWORKING PRODUCTS

Novell

IntranetWare is NetWare V4.11 and more...

IntranetWare Upgrades	
5-user CD	328.53
10-user CD	583.32
25-user CD	981.32
50-user CD	1245.68
100-user CD	1729.60
250-user CD	3349.95
IntranetWare	
5-user CD	672.39
10-user CD	1261.15
25-user CD	2289.38
50-user CD	3015.57
GroupWise V5.0	
5-user CD	487.85
10-user CD	959.82
25-user CD	2339.69
50-user CD	4556.35
100-user CD	8916.25
ManageWise V2.1	
5-user CD	539.40
10-user CD	893.86
25-user CD	1349.81
LAN WorkPlace V5.0	
Single-user CD	169.52
10-user CD	1345.99
100-user CD	4677.48

Microsoft

BackOffice Server V2.0	
Version upg CD	693.55
Comp upg CD	1593.10
Full version CD	1949.14
5-client license	1179.39
20-client license	3737.33
Windows NT Server V3.51	
Network Value Pack w/Internet Info Server	889.15
Single-client license	38.13
20-client license pack	503.27
Windows NT Server V4.0	
Upg + 5-client license CD	377.15
Upg + 10-client license CD	499.73
Comp upg + 5-client license CD	378.82
Comp upg + 10-client license CD	508.26
Server + 5-client license CD	746.28
Server + 10-client license CD	1033.76
Single-client license upg	17.19
Single-client license	34.32
Microsoft Windows NT Workstation V4.0	
Version upg CD	133.53
Single-client upg	239.49
Full version CD	283.20
Microsoft SQL Server V6.5	
Server + 5-client license CD	1239.19
Server + 10-client license CD	1768.06
Server + 25-client license CD	3534.84
5-client license	659.16
20-client license	2084.26
Microsoft Systems Mgmt Server V1.2	
SMS Server CD	817.59
5-client license	242.46
Microsoft SNA Server V2.11	
SNA Server CD	359.59
Single-client license	55.77
20-client license pack	861.40
Microsoft Exchange V4.0	
5-client license	323.91
20-client license	1034.04
Microsoft Exchange Server V4.0	
Server + 5-client license CD	889.76
Server + 10-client license CD	1219.76
Server + 25-client license CD	1928.12

3Com

3C900 EtherLink XL PCI 10BT	112.16
3C900 EtherLink XL PCI 10BT 5-pack	504.30
3C900 Ethernet XL PCI combo	132.85
3C900 Ethernet XL PCI combo 5-pack	575.37
3C905 Fast EtherLink XL PCI 10/100BT	136.95
3C905 Fast EtherLink XL PCI 10/100BT 5-pack	606.42
OfficeConnect 8-port hub	149.94
OfficeConnect 8-port hub, 1BNC port	179.36
SuperStack II Hub 12-port 10BT	511.66
SuperStack II Hub 24-port 10BT	849.26
SuperStack II Hub 12-port 100BT	1247.21
SuperStack II Hub 48-port 100BT	4717.09
SuperStack II Switch 1000 12-port Enet	2103.08
SuperStack II Switch 1000 24-port Enet	2664.78
SuperStack II Hub TR 12-port	1194.04
SuperStack II Switch 2000 TR 12-port	5349.47

Need a 3Com LAN PC Card? Call CDW today!

NETWORKING PRODUCTS

BELKIN

AirMetro starter kit	386.01
ExpandView 4-port	99.12
OmniView PS/2 4-port	245.52
OmniView 6-port serial	246.66
Parashare 95 PC expansion pack	36.20
Parashare 95 starter kit	71.61

BOCA

IOAT55 ISA/EISA i/o 2 serial 1 parallel	46.63
BOCAHUB-8 8-port 10BT	89.72
BOCAHUB-16 Plus 16-port 10BT	219.67
BOCAHUB-24 Plus 24-port 10BT	369.42

Cisco Systems

CiscoPro CPA201 personal office ISDN	242.15
CiscoProCPA761 access router ISDN	479.58
CiscoProCPA766 access router ISDN	614.74
CiscoPro EtherSwitch 1200 25-port 10BT	3416.69
CiscoPro EtherSwitch 1600 stack system	4047.42

COMPAQ

Netelligent 10BT PCI controller	103.25
Netelligent 10/100BTX PCI controller	138.45
Netelligent 2000 8-port 10BT repeater	477.16
Netelligent 2000 16-port 10BT repeater	564.13
Netelligent 5000 10/100BTX 6-port switch	1029.19
Netelligent 5012 10/100BTX 12-port switch	3114.08

intel

EtherExpress PRO/10+ PCI combo	134.03
EtherExpress PRO/10+ PCI combo 5-pack	553.34
EtherExpress PRO 100 PCI	131.64
EtherExpress PRO 100 PCI 5-pack	592.28
Express 100BTX 12-port stackable hub	1517.98
Express 100 BTX switching hub	3185.23
LANDesk Virus Protect V3.01 1-server pack	606.15
LANDesk Virus Protect V3.01 4-server pack	1805.17
NetPortExpress PRO Enet internal	261.49
NetPortExpress PRO Enet external	367.14

DATA STORAGE

COLORADO MEMORY SYSTEMS INC.

Jumbo 350 350MB TBU internal	45.82
Jumbo 1400 1.3GB TBU internal	193.66
T1000E 800MB TBU external	159.18

iomega

Zip drive 100MB parallel	199.95
Zip drive 100MB SCSI	199.95
Ditto Easy 800MB Travan internal	103.59
Ditto Easy 800MB Travan external	149.95
Jaz drive 1GB internal SCSI-2	399.95
Jaz drive 1GB external SCSI-2	499.95
Jaz drive 1GB cartridge	124.95

SyQuest

EZ135 135MB IDE internal	119.23
EZ135 135MB SCSI external	119.23
EZ135 135MB external	119.23
EZ135 135MB cartridge	19.99
EZFlyer 230MB SCSI external	291.47
EZFlyer 230MB external	291.47
EZFlyer 230MB cartridge	29.39

MULTIMEDIA

ADS Cadet AM/FM stereo data receiver	66.15
ADS TV Superscan 2 PC to TV converter	291.13
Connectix QuickCam for Windows	97.36
Connectix Color QuickCam for Windows	222.66
EXP 8X CD w/game port PCMCIA	377.51
EXP 8X CD w/sound module PCMCIA	498.84
Microsolutions 4X CD parallel	219.67
Microsolutions 6X CD w/sound parallel	357.76
Microsolutions 8X CD parallel	337.55
NEC 4Xc 4X CD 7-disc changer external	354.60
NEC 6Xi 6X CD internal	243.82
NEC 6Xe 6X CD external	335.65
NEC 8V 8X CD internal IDE	151.71
NEC 8Xi 8X CD internal SCSI-2	341.76
NEC 8Xe 8X CD external SCSI-2	449.51
Panasonic portable 4X CD SCSI	399.00
Sony portable 4X CD Discman®	302.98
SunMoonStar 8X CD internal IDE/ATAPI	135.24
SunMoonStar 8X CD portable	271.88

INPUT DEVICES

Alps Desktop GlidePoint	66.86
Alps GlidePoint Windows 95 keyboard	95.58

INPUT DEVICES

Calcomp Drawing Slate II 6x9 w/pressure pen	195.34
Calcomp Drawing Slate II 12x12 w/pressure pen	217.66
Epson PhotoPC digital camera	399.00
Epson ActionScanning System II	376.41
Epson ES1000C color scanner	572.37
Epson ES1200C Pro color scanner	1138.56
Hewlett Packard ScanJet 4s	198.41
Hewlett Packard ScanJet 4p	499.90
Hewlett Packard ScanJet 4c	857.90
Kodak DC20 Digital Science Camera	299.00
Kodak DC25 Digital Science Camera	499.00
Kodak DC50 Digital Science Camera	899.00
Logitech MouseMan 96	55.51
Logitech Cordless MouseMan 96	61.22
Logitech SurfMan Internet controller	84.58
Logitech TrackMan Marble	84.76
Logitech PageScan Color Pro scanner	307.76
Microtek PageWiz compact scanner	98.17
Microtek ScanMaker E3 color flatbed	309.26
Microtek ScanMaker E6 std. color flatbed	556.72
Microtek ScanMaker 35t Plus	731.66
Play Snappy video still capture	195.97
Umax PageOffice Color scanner	239.88
Umax Vista-S6E scanner	292.93
Umax Vista-S12 scanner	712.10
Visioneer PaperPort Vx scanner	277.21
Visioneer PaperPort ix scanner	304.36

MONITORS

Mag Innovision DX1595 PnP 15" .28mm	349.28
Mag Innovision DX1795 PnP 17" .26mm	612.61
Mag Innovision DX15T 15" .26mm	394.49
Mag Innovision DX1795E 17" .28mm	529.00
Mag Innovision MXP17F 17" .26mm	713.22
Mag Innovision MX21F 21" .28mm	1531.16
Magnavox CM2099 14" .28mm	244.24
Magnavox CM2015 15" .28mm	299.87
Magnavox CM1215 15" .28mm	341.37
Magnavox 107B 17" .28mm	602.55
Magnavox 20CM64 20" .31mm	849.00
NEC XV15+ 15" .28mm	473.13
NEC XV17+ 17" .28mm	759.05
NEC XE21 21" .28mm	1705.69
NEC XP21 21" .28mm	1943.57
Sony Multiscan 15sx 15" PnP .25mm	369.34
Sony Multiscan 15sfII 15" PnP .25mm	439.58
Sony Multiscan 17sfII 17" PnP .25mm	729.23
Sony Multiscan 17seII 17" PnP .25mm	929.76
Sony Multiscan 20sfII 20" PnP .30mm	1559.84
ViewSonic 15GSIII 15" .27mm	359.49
ViewSonic 17GS 17" .27mm	616.79
ViewSonic G810 21" .25mm	1424.69
ViewSonic P810 21" .25mm	1472.58
ViewSonic P815 21" .25mm	1653.43
ViewSonic PT810 21" .30mm	1634.25

VIDEO BOARDS

ATI 3D Xpression PCI 2MB	151.54
ATI Graphics Xpression PCI 2MB	93.68
ATI Graphics Xpression ISA 2MB	95.87
ATI Graphics Pro Turbo PCI 2MB	175.28
ATI Graphics Pro Turbo PCI 4MB	273.77
ATI Video Xpression PCI 2MB	83.27
Diamond Stealth 3D 2000XL 4MB PCI	176.43
Diamond SpeedStar64 2200 2MB ISA	94.84
Matrox Millennium PCI 2MB WRAM	182.31
Matrox Millennium PCI 4MB WRAM	251.15
Matrox Mystique PCI 2MB WRAM	167.71

OVERDRIVE PROCESSOSRS

intel

Intel OverDrive DX4/75	138.66
Intel OverDrive DX4/100	183.34
Intel OverDrive Pentium 63MHz	138.66
Intel OverDrive Pentium 83MHz	189.27
Intel OverDrive Pentium 120/133MHz upg for 560/566	253.45
Intel OverDrive Pentium 125MHz upg for 5/75	259.24
Intel OverDrive Pentium 150MHz upg for 5/90	319.20
Intel OverDrive Pentium 166MHz upg for 5/100	456.23

PC CARDS

3Com Etherlink IIIC	135.44
3Com Etherlink III 28.8 Enet 10BT	339.85
Hayes EZJack V.34 33.6 w/fax	206.42
Megahertz Courier 33.6	259.67
Megahertz 33.6 cellular	248.93
Megahertz 33.6 cellular w/XJACK	248.93
Motorola Montana 33.6 cellular	227.46
Simple 33.6 cellular	177.31
Simple 33.6 Communicator w/SimpleJack	238.32
Xircom 33.6	224.96
Xircom 33.6 Ethernet 10BT	311.52
Xircom 33.6 Ethernet combo	339.14

CDW® Computer Centers, Inc.
1020 E. Lake Cook Road
Buffalo Grove, IL 60089

PCW1913 PC World 1/97

NASDAQ
BUY WITH CONFIDENCE CDW® IS A NASDAQ TRADED COMPANY
TICKER SYMBOL CDWC
D & B rated 5A1
Duns 10-762-7952

DISCOVER NOVUS · VISA · MasterCard · American Express Card

Credit card charges are not submitted until time of shipment. For your protection, we ship only to your credit card's verified billing address. Freight is calculated as the carrier's actual freight charge plus insurance and packaging material. The cost of insurance is 0.35% (0.0035) of the order total. Packaging materials will not exceed $4.00 for single package shipments or $8.00 for multi-package shipments. Before returning any product, you must obtain an RMA number. Non-defective returns are subject to a restocking fee. Software, chips and other electronic components are not returnable. Allow 10 business days for shipping when paying by personal check. All pricing subject to change. For all prices, products and offers CDW reserves the right to make adjustments due to changing market conditions, product discontinuation, manufacturer price changes, errors in advertisements or other extenuating circumstances. All trademarks and registered trademarks are the sole property of their respective owners.

CDW® TELEPHONE HOURS
Sales
Monday-Friday 7am-9pm CST
Saturday 9am-5pm CST
Tech Support for Customers
Monday-Friday 8am-9pm CST
Saturday 9am-5pm CST

Fax: 847-465-6800
Sales: 800-865-4239

Visit our web site!
www.cdw.com

SYMANTEC.

ACT! V3.0 and WinFax PRO V7.5

Two great products, one great price

ACT! for Windows 95 and NT features a ready-to-use contact database and integrated calendar - it's the most complete solution for effectively managing your business relationships. WinFax PRO for Windows 95 makes it incredibly easy to send faxes from your computer - fax directly from any Windows application as easily as printing. Together, ACT! and WinFax PRO help you save time and money, look more professional, and communicate more effectively. This special value is available for a limited time only - get yours today!*

$181.26 CDW 77016

**Promo package. ACT! V3.0 is $179 and WinFax PRO is $77 if purchased separately. Offer valid 11/1/96 - 1/31/97.*

WHY SETTLE FOR LESS?

CDW® SERVICES YOU BETTER!™

MOTOROLA

V.34 ModemSURFR™

Motorola brings the world to your fingertips

▲ 28,800 bps to 300 bps data transmission ▲ 14,400 bps to 2,400 bps send/receive fax transmission ▲ Error-free data transfer provides optimum throughput and performance ▲ Maximizes speed and minimizes errors for the most economical and error-free connection possible ▲ Educational and game software included

Internal ..... **$109.62** CDW 65175

Desktop ..... **$126.65** CDW 65176

Motorola V.34 VoiceSURFR™, internal ..... **$152.63** CDW 71632

CDW CIRCLE OF SERVICE®

CDW® CARRIES OVER 20,000 PRODUCTS. IF YOU DON'T SEE IT, CALL!

COMPUTER DISCOUNT WAREHOUSE™

COMPUTERS

TOSHIBA

Satellite & Satellite Pro Notebooks
110CS 5/100 8MB 810MB 11.3" dual . . 1579.28
110CT 5/100 8MB 810MB 11.3" active . 2059.50
200CDS 5/100 8MB 810MB 11.3" dual 6X CD . 1979.00
410CS 5/90 8MB 772MB 11.3" dual . . . 1782.96
410CDT 5/90 8MB 772MB 11.3" active 4X CD . 2475.48
420CDS 5/100 8MB 810MB 11.3" dual 6X CD . 2149.63
420CDT 5/100 8MB 1.26GB 11.3" active 6X CD . 2868.39
430CDS 5/120 16MB 1.2GB 11.3" dual 10X CD . 2479.00
430CDT 5/120 16MB 1.2GB 11.3" active 10X CD . . 3279.00
Portege Notebooks
610CT 5/90 8MB 720MB 9.5" active . . . 2429.66
620CT 5/100 8MB 1.2GB 10.4" active . . 2497.62
650CT 5/133 16MB 1.26GB 11.3" active 3965.11
660CDT 5/150 16MB 1.2GB 11.3" active 6X CD . . . 4959.00
Tecra Notebooks
500CS 5/120 16MB 1.26GB 12.1" dual . 2949.28
500CDT 5/120 16MB 1.26GB 12.1" active 6X CD . . 4168.88
510CDS 5/133 16MB 1.2GB 12.1" dual 10X CD . 3679.00
510CDT 5/133 16MB 2.1GB 12.1" active 10X CD . . 4959.00
720CDT 5/133 16MB 1.13GB 12.1" active 6X CD . . 5289.11
730CDT 5/150 16MB 2GB 12.1" active 6X CD . 5689.75

AST

Ascentia Notebooks
A41 5/120 16MB 1GB 11.3" dual 6X CD . 2399.00
A42 5/120 16MB 1GB 12.1" active 6X CD . . 2999.00
J20 5/100 8MB 540MB 11.3" dual 1449.07
J20 5/100 8MB 800MB 11.3" dual 1529.41
J30 5/100 8MB 800MB 10.4" dual 1479.67
J30 5/100 8MB 800MB 10.4" active . . . 1573.96
J50 5/133 8MB 800MB 10.4" active . . . 1899.00
P30 5/100 8MB 800MB 11.3" dual 4X CD . 1851.49
P30 5/100 8MB 1.2GB 11.3" dual 4X CD . 2084.97
P40 5/120 16MB 1GB 11.3" active 6X CD . 3028.70
P40 5/120 16MB 2.1GB 11.3" active 6X CD . 3399.18
P50 5/133 8MB 800MB 11.3" active 4X CD . . 2999.74
P50 5/133 8MB 1.2GB 11.3" active 4X CD . . . 3236.67
P50 5/133 24MB 1GB 12.1" active 6X CD . 3627.54
P50 5/133 24MB 2.1GB 12.1" active 6X CD . . 4275.73
Advantage! Lifestyle Mini-towers
9310 5/166 24MB 2.5GB 8X CD 2199.00
9312 5/166 24MB 2.5GB 8X CD 2299.00
9315 5/166 32MB 2.5GB 8X CD 2399.00
9316 5/200 32MB 3GB 8X CD 2699.00
Advantage! 9300 Series Mini-towers
9304 5/133 24MB 1.6GB 8X CD 1599.00
9308 5/166 24MB 2.5GB 8X CD 1999.00
9314 5/200 24MB 4GB 8X CD 2499.00
Bravo Desktops
LC 5100 5/100 8MB 630MB 1004.99
LC 5100 5/100 16MB 1.2GB 1049.18
LC 5133 5/133 8MB 630MB 1189.91
LC 5133 5/133 16MB 1.2GB 1322.61
LC 5166 5/166 16MB 1.2GB 1579.55
MS 5100 5/100 16MB 1.2GB 1118.99
MS 5100 5/100 16MB 2.1GB 1201.93
MS 5133 5/133 16MB 1.2GB 1327.11
MS 5133 5/133 16MB 2.1GB 1389.25
MS 5166 5/166 16MB 2.1GB 6X CD . . . 1921.67
Bravo Mini-towers
MS-T 5100 5/100 16MB 1.2GB 1174.24
MS-T 5100 5/100 16MB 2.1GB 1285.01
MS-T 5133 5/133 16MB 1.2GB 1399.11
MS-T 5133 5/133 16MB 2.1GB 1473.33

COMPAQ

Armada Notebooks
1120 5/100 8MB 810MB 10.4" dual 1899.00
1120T 5/100 8MB 810MB 10.4" active. . 2249.00
4110 5/100 8MB 810MB 11.3" dual 2499.00
4110D 5/100 8MB 810MB 11.3" dual. . . 2899.00
4120 5/120 16MB 1.08GB 11.3" dual. . . 3099.00
4120T 5/120 16MB 1.08GB 11.8" active 3749.00
4130T 5/133 16MB 1.08GB 11.8" active 4449.00
LTE 5000 Series Notebooks
5100 5/90 8MB 810MB 10.4" active. . . . 4032.97
5150 5/100 8MB 810MB 11.3" dual 2889.00
5200 5/120 8MB 1.35GB 10.4" active . . 4801.37
5250 5/120 16MB 810MB 10.4" active. . 3649.00
5280 5/120 16MB 1.35GB 11.3" active . 4429.00
5300 5/133 16MB 1.35GB 12.1" active . 4799.00
5380 5/133 16MB 2.16GB 12.1" active . 5789.00
Deskpro 2000 Series Desktops
5100/630 5/100 8MB 630MB 1119.00
5100/1200 5/100 8MB 1.2GB 1119.00
5100/1200 5/100 16MB 1.2GB 1229.00
5120/1200 5/120 8MB 1.2GB 1139.00
5120/1200 5/120 16MB 1.2GB 1239.00
5133/1200 5/133 16MB 1.2GB 1389.00
5133/2500 5/133 16MB 2.5GB 1549.00

COMPUTERS

COMPAQ

Deskpro 2000 Series Desktops
5166/1200 5/166 16MB 1.2GB 1639.00
5166/2500 5/166 16MB 2.5GB 1799.00
5200/2500 5/200 32MB 2.5GB 2209.00
6180/1200/CD 6/180 16MB 1.2GB 8X CD . . . 2099.00
6200/2500/CD 6/200 16MB 2.5GB 8X CD . . . 2599.00
Deskpro 4000 Series Desktops
5120/1080 5/120 16MB 1.08GB 1349.00
5120/1620/LS 5/120 16MB 1.62GB 1529.00
5133/1080 5/133 16MB 1.08GB 1539.00
5133/1620 5/133 16MB 1.62GB 1629.00
5166/1620 5/166 16MB 1.62GB 1879.00
5166/2500/LS 5/166 16MB 2.5GB 2089.00
6180/1620/CDS 6/180 32MB 1.62GB 8X CD . 2549.00
6200/2500/LS/CDS 6/200 32MB 2.5GB 8X CD . . 2959.00
Deskpro 6000 Series Desktops
5166/1080/CDS 5/166 16MB 1.08GB 8X CD . 2329.00
5166/1080/CDS 5/166 32MB 1.08GB 8X CD . 2579.00
5200/1080/CDS 5/200 32MB 1.08GB 8X CD . . 2899.00
6180/2150/CDS 6/180 32MB 2.15GB 8X CD . 3199.00
6200/2150/CDS 6/200 32MB 2.15GB 8X CD . 3339.00
6200/4200/PDS 6/200 32MB 4.2GB PD-CD . . 4849.00
Deskpro mini-towers also available!
Presario Desktops
4112 5/120 16MB 1.6GB 6X CD 1399.00
4122 5/150 16MB 2.5GB 8X CD 1899.00
4402 5/133 16MB 1.6GB 6X CD built-in 15" monitor 1999.00
Presario Mini-towers
4704 5/133 16MB 1.6GB 6X CD 1599.00
4712 5/166 24MB 2.5GB 6X CD 1899.00
6704 5/166 24MB 2.5GB 8X CD 2199.00
8702 5/166 24MB 2.5GB 8X CD 2499.00
4716 5/200 32MB 2.5GB 8X CD 2299.00
6708 5/200 32MB 2.5GB 8X CD 2699.00

IBM

ThinkPad Notebooks
365ED 5/100 8MB 540MB 10.4" dual 4X CD . . . 1578.95
365X 5/120 8MB 810MB 10.4" active . . 2487.64
365X 5/133 8MB 1.08GB 11.3" dual . . . 2429.56
365XD 5/100 8MB 810MB 10.4" dual 4X CD . . 2368.17
365XD 5/120 8MB 810MB 10.4" active 4X CD . 2622.49
365XD 5/120 8MB 1.08GB 11.3" dual 4X CD . 2554.30
365XD 5/120 8MB 1.08GB 10.4" active 4X CD . 3001.60
365XD 5/133 8MB 1.35GB 11.3" active 6X CD . 3578.60
560 5/100 8MB 810MB 11.3" dual 2786.08
560 5/120 8MB 810MB 12.1" active. . . . 3745.64
560 5/133 8MB 1.08GB 12.1" active . . . 4195.15
760E 5/120 8MB 810MB 12.1" active . . 4462.26
760E 5/120 8MB 1.2GB 12.1" active . . . 4427.71
760E 5/133 16MB 1.08GB 12.1" active . 5056.50
760ED 5/133 16MB 1.2GB 12.1" active 4X CD . . 5407.41
760ED 5/133 16MB 2.1GB 12.1" active 6X CD . . . 5799.38
760E 5/150 16MB 2.1GB 12.1" active . . 5499.97
760EL 5/100 8MB 810MB 11.3" dual. . . 3206.62
760ELD 5/100 8MB 810MB 12.1" active 4X CD . . . 4615.23
760EL 5/120 8MB 810MB 11.3" dual. . . 3399.51
760EL 5/120 8MB 1.08GB 12.1" active . 4392.50
760EL 5/120 8MB 1.35GB 11.3" dual . . 3489.99
760EL 5/133 16MB 1.08GB 12.1" active 4503.92
Aptiva Series Desktops
C32 5/133 16MB 1.2GB 6X CD 1497.13
C33 5/133 16MB 1.6GB 8X CD 1699.74
C65 5/166 16MB 2GB 8X CD 1942.95
C73 5/200 16MB 2.5GB 8X CD 2081.96
S64 5/166 16MB 2.5GB 8X CD 2249.00
S66 5/166 16MB 3.2GB 8X CD 2399.00
S74 5/200 16MB 2.5GB 8X CD 2399.00
S78 5/200 32MB 3.2GB 8X CD 2699.00
PC300 Series Desktops
PC330 5/133 16MB 1.2GB 3 bays 1739.91
PC330 5/133 16MB 1.6GB 3 bays 1855.01
PC340 5/100 8MB 850MB 4 bays 999.56
PC340 5/100 16MB 1.2GB 4 bays 1179.92
PC340 5/133 16MB 1.2GB 4 bays 1349.05
PC350 5/100 16MB 1.2GB 5 bays 1586.38
PC350 5/133 16MB 1.2GB 5 bays 1814.41
PC350 5/133 16MB 1.6GB 5 bays 1873.55
PC350 5/133 16MB 1.6GB 5 bays 6X CD . 2042.87
PC350 5/166 16MB 1.6GB 5 bays 2228.64
PC700 Series Desktops
PC700 5/100 16MB 1.2GB 5 bays 1692.72
PC700 5/133 16MB 1.2GB 5 bays 1869.03
PC700 5/166 16MB 1.2GB 5 bays 2245.45

COMPUTERS

NEC

Versa Notebooks
2400 5/100 8MB 810MB 11.3" dual 1999.00
2400CD 5/100 8MB 1.08GB 11.3" dual 6X CD . . 2499.00
4200 5/100 8MB 810MB 10.4" active. . . 2699.00
4230 5/133 8MB 1.08GB 10.4" active 6X CD . . 3499.00
6000H 5/100 16MB 1.08GB 11.3" active 6X CD . . . 3499.00
6010H 5/133 16MB 1.08GB 11.3" active 6X CD . . . 3799.00
6030H 5/133 16MB 1.35GB 12.1" active 6X CD. . . 4499.00
6030X 5/133 16MB 1.44GB 12.1" active 6X CD. . 4799.00

TEXAS INSTRUMENTS

Extensa Notebooks
570CD 5/100 8MB 810MB 11.3" dual 6X CD . . 1953.43
570CDT 5/100 8MB 1.2GB 10.4" active 6X CD . 2698.55
600CD 5/120 8MB 810MB 12.1" dual 6X CD . 2222.43
650CD 5/133 16MB 1.4GB 12.1" dual 10X CD . . 3183.04
650CDT 5/133 16MB 2.1GB 11.3" active 10X CD. . 3659.23
TravelMate Notebooks
TM5200 5/120 8MB 1.2GB 11.3" active. 2672.88
TM5300 5/133 8MB 1.2GB 11.3" active. 2701.36
TM6020 5/120 8MB 1.08GB 11.3" active . 3751.93
TM6030 5/133 16MB 1.35GB 12.1" active . 4229.30
TM6050 5/150 16MB 1.35GB 12.1" active . 4609.91

HEWLETT® PACKARD

Vectra 520 Series Desktops
520MCx 5/120 12MB 1.2GB 8X CD. . . . 1533.75
520 5/133 16MB 1.2GB 1279.84
520CD 5/133 16MB 1.2GB 8X CD. 1534.65
520MCx 5/133 16MB 1.2GB 8X CD. . . . 1717.86
Vectra 525 Series Mini-towers
525CD 5/166 16MB 1.6GB 8X CD. 1894.94
525MCx 5/166 16MB 1.6GB 8X CD. . . . 2094.49
525CD 5/200 16MB 2.5GB 8X CD. 2196.31
525MCx 5/200 32MB 2.5GB 8X CD. . . . 2584.40

HITACHI

E100D 5/100 8MB 810MB 11.3" dual . . 1999.00
E133T 5/133 16MB 810MB 11.3" dual. . 2999.00
M120T 5/120 16MB 1GB 11.8" active 4X CD . . 3699.00
M133T 5/133 16MB 1GB 11.8" active 6X CD . . . 4399.00

PRINTERS

ALPS

MD-2010 color printer 499.00
MD-4000 color printer/scanner. 699.00

brother

HL-720 laser. 351.81
HL-730 laser. 399.99
MFC-1950Plus 6-in-1 . . . . . 499.99
MFC-4550 5-in-1 . . . . . 799.99
MFC-6550mc 6-in-1 . . . . . 999.99

Canon®

BJ-30 monochrome 265.50
BJC-70 . . . . . 297.28
BJC-240 . . . . . 179.00
BJC-620 . . . . . 399.00
BJC-4100 . . . . . 229.00
BJC-4200 . . . . . 279.00
MultiPASS 800 multi-function. 449.00
MultiPASS C2500 color multi-function . . . 599.00

EPSON®

DFX5000+ 1387.25
FX870. . . . . 289.45
LQ870 . . . . . 443.03
LQ2070 . . . . . 383.04
LQ2170 . . . . . 599.00
LX300. . . . . 165.41
Stylus 1500 . . . . . 995.00
Stylus Color 200. . . . . 179.00
Stylus Color 500. . . . . 279.00
Stylus Color II. 279.00
Stylus Pro color 379.00
Stylus Pro XL color. 1799.00

PRINTERS

HEWLETT® PACKARD

HP DeskJet 400 printer 204.61
HP DeskJet 340 portable inkjet printer. . . 293.84
HP DeskJet 682C color printer. 299.00
HP DeskJet 820Cse color printer. 399.00
HP LaserJet 5L Xtra printer 479.00
HP LaserJet 5P printer. 796.71
HP OfficeJet inkjet fax/copier/printer 475.87
HP OfficeJet 350 inkjet multi-function . . . 549.00

LEXMARK.

Jetprinter 1020 . . . . . 148.15
Jetprinter 2050 . . . . . 256.18
Jetprinter 2070 . . . . . 347.08
Optra C. 5913.75
Optra E. 504.47
Optra LX+ 1849.57
Optra N 2688.22
Optra R+ 1255.23
Optra Rn+. 1483.44
Optra Rt+ 1483.44

OKIDATA

ML184 Turbo 228.28
ML320 Turbo 317.15
ML321 Turbo 445.72
ML395 . . . . . 1005.20
ML520 . . . . . 381.94
ML521 . . . . . 509.02
ML590 . . . . . 445.72
ML591 . . . . . 603.67
Okipage 4w 299.00
OL600e 399.00
OL610e 497.33
OL810e 673.62

MODEMS

Hayes

ACCURA 336 V.34 internal w/fax 141.13
ACCURA 336 V.34 external w/fax 149.36
ACCURA 336 DSVD internal 168.17
ACCURA 336 DSVD external 184.51
ACCURA 336 V.34 voice internal 158.77
OPTIMA 336 Business Modem external . 236.48

MOTOROLA

BitSURFR ISDN adapter internal 263.07
BitSURFR ISDN adapter external 263.46
BitSURFR Pro ISDN terminal adapter . . . 346.46
ModemSURFR V.34 28.8 internal 109.62
ModemSURFR V.34 28.8 external. 126.65
OnlineSURFR V.34 28.8 internal 111.09
OnlineSURFR V.34 28.8 external 128.59
VoiceSURFR V.34 28.8 internal. 152.63

U.S. Robotics

Sportster Series
14.4 internal w/fax 44.12
V.34 33.6 internal w/fax 149.48
V.34 33.6 external w/fax 169.29
Voice V.34 33.6 internal w/fax 169.29
Voice V.34 33.6 external w/fax. 189.40
Winmodem V.34 33.6 internal w/fax 114.93
ISDN 128K terminal adapter 229.66
Courier Series
V.34 33.6 internal w/fax 238.90
V.34 33.6 external w/fax 273.51
I-modem ISDN V.34 faxmodem internal . 293.14
I-modem ISDN V.34 faxmodem external . 344.74

BATTERY BACKUPS

APC

Back-UPS Office 138.33
Back-UPS Pro 280 PNP. 143.51
Back-UPS Pro 420 PNP. 237.70
Back-UPS Pro 650 PNP. 287.44
Smart-UPS 700 . . . . . 362.89
Smart-UPS 1000 . . . . . 498.62
Smart-UPS 1400 . . . . . 621.50
SurgeArrest Personal. 16.40
SurgeArrest Professional 26.21
SurgeArrest Network 29.10

For more great values, see our ad in the front of this issue!

800-865-4239

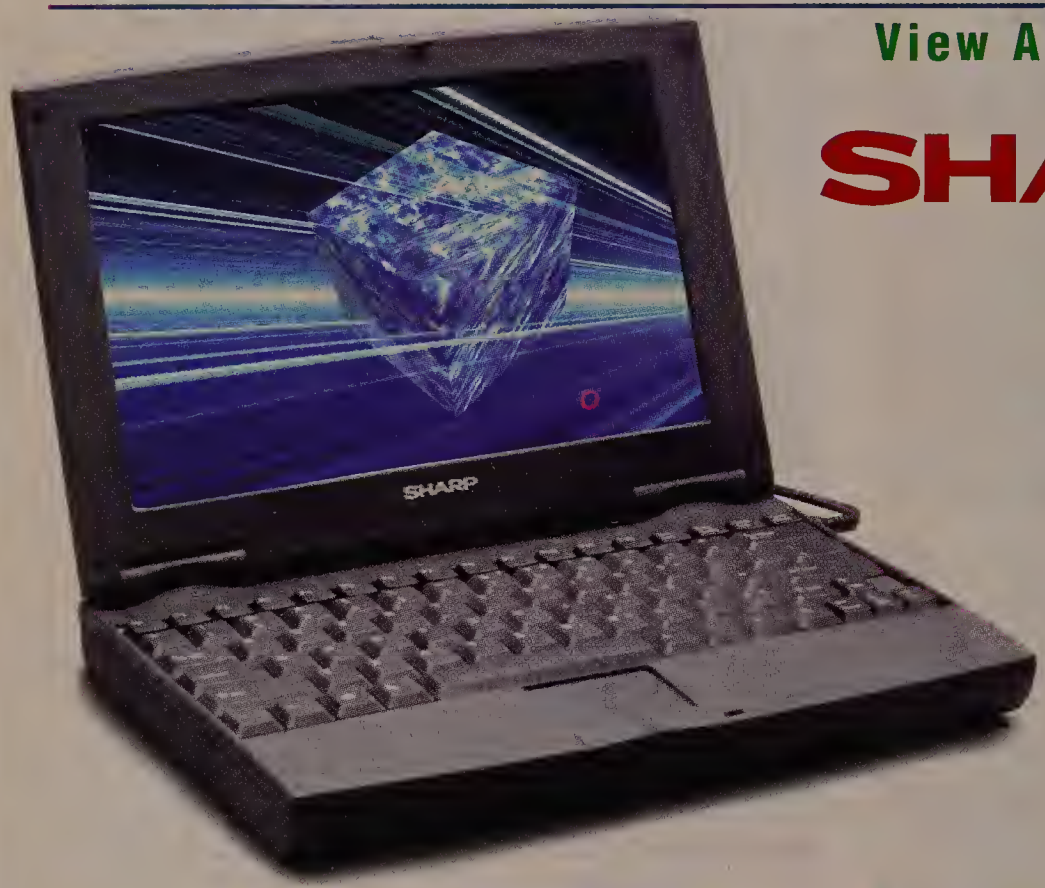
www.cdw.com

©1997 CDW Computer Centers, Inc. PCM1913 PC World 1/97

Circle 68 on reader service card

THE NEXT DIMENSION IN NOTEBOOK COMPUTING.

View An Entire Spreadsheet!



SHARP WIDENOTE

- Wide Screen Display (11.2" Diagonal Viewing)
- Lightweight (4.6 lbs)
- Wireless Communication
- 16-Bit Stereo Sound
- Built-in 28.8 Kbps VOICE/DATA/FAX Modem
- Modular Design

S H A R P - Smarter Notebooks for Sharp Minds!

	Processor	Display	RAM	HDD	Modem	CD-ROM Drive	Weight	Price
NEW! SHARP WIDENOTE SERIES								
PC-W100D	Pent-133	11.2" Dual, 1024x600 Resolution	16MB	1.1GB	28.8Kbps	n/a	4.6 lbs	$2739
PC-W100T	Pent-133	11.2" TFT, 1024x600 Resolution	16MB	1.1GB	28.8Kbps	n/a	4.6 lbs	$3199
BEST SELLING SHARP NOTEBOOKS								
PC-3040	Pent-100	12.1" TFT, 640x480 Resolution	8MB	1.1GB	n/a	n/a	5.5 lbs	$1499
PC-9020	Pent-120	12.1" Dual, 800x600 Resolution	16MB	1.1GB	n/a	8X Removable	7.3 lbs	$2349
PC-9050	Pent-133	11.3" TFT, 800x600 Resolution	16MB	1.1GB	n/a	6X Removable	7.3 lbs	$2819
PC-9080	Pent-133	12.1" TFT, 1024x768 Resolution	16MB	1.3GB	n/a	6X Removable	7.3 lbs	$4229

All models listed above includes Glidepad, Infrared, 16-bit sound and speakers.

SPECIAL
Pentium 133
Dual Scan Color
$2739
Pentium 133 TFT Color
$3199

Where Corporate America Shops!

MIDWEST COMPUTER WORKS

800-440-8837

DHL WORLDWIDE EXPRESS · FedEx · DISCOVER NOVUS · VISA · MasterCard

FAST SHIPPING, NO PROBLEM!
WE DELIVER WHEN YOU NEED IT.

Limited Supply!
FREE
GENUINE LEATHER NOTEBOOK CASE!
($99 Value)
Key Code CW01S

✓ Knowledgeable Sales Staff ✓ Fast Delivery ✓ Quality Top Name Brands ✓ Technical Support

30-Day Money Back Guarantee • No Surcharge for Credit Cards • Leasing Available • Prices are subject to change • International Orders Require Payment by Wire Transfer or AMEX.

Circle 157 on reader service card

WE WILL TRY TO MATCH OR BEAT ANY ADVERTISED PRICE. CALL FOR LATEST PRICING!!

WE ACCEPT PO'S FROM QUALIFIED FIRMS

30 DAY* MONEY BACK GUARANTEE

MEMORY

LIFETIME WARRANTY

SECURITY WILL CALL WINDOW NOW OPEN! NO SURCHARGE FOR MC, VISA AE & DISCOVER

HOT BOX SPECIALS

Compaq contura 400, 4Meg	$49.00
4 x 8-80	29.00
4 x 8-70	39.00
Compaq 1Meg V-Ram Pt. No. 171017-001	19.00
Thinkpad 750, 720, 700, 360, 355 4Meg	39.00
1 x 1-80, 18 pin chip	2.00
1 x 9-80	9.00
Cyrix DRX2, 16-32	69.00
NEC Versa, 4Meg	49.00
Panasonic 6500, 1Meg Module	14.00
Winbook XP, 8Meg	59.00
Epson 650C, 4Meg	39.00
TS38 Models - ALL - 4Meg	39.00
1Meg, 64Pin, AST SIMMS	9.00

CACHE MEMORY

	12NS	15NS	20NS	25NS
x8	–	6.50	6.00	5.50
Kx8	9.00	4.50	4.25	4.00
Kx8 (3.3V)	–	14.00	9.50	–
Kx1	–	11.00	9.00	8.00
Kx4	–	11.00	9.00	8.00
Kx8	–	15.00 (5V)	19.00 (3.3V)	–
Kx4	–	8.00	7.00	6.00
8Kx8	–	29.50	26.00	24.00
x8 SOJ	–	12.00	11.00	9.00

ll for SOJ Version

CACHE MODULES

256K (160 pin) Pipeline Burst Cache Module $22.00

512K (160 pin) Pipeline Burst Cache Module $39.00

256K (160 pin) Async Cache Module compatible with IBM Aptive $59.00

256K (160pm) Async Coast Module $29.00

Individual D-RAM Chips

MEMORY FOR IBM & APPLE

	50NS	60NS	70NS	80NS	100NS
Megx1	–	5.00	4.00	2.00	2.00
Megx4	–	19.00	18.00	17.00	–
Megx4 (Zip Pk)	–	12.00	11.00	10.00	–
6x4(Page Dip)	–	7.25	6.75	6.50	5.95
6 4(Static Dip)	–	–	9.95	–	–
6x4(Page Zip)	–	9.25	9.00	8.95	–
6x4(Video Zip)	–	–	10.95	9.95	7.95
6x8(SOJ)	–	12.00	11.00	–	–
6x16 SOJ	–	39.00	29.00	–	–
6x16 SOJ Edo	–	39.00	–	–	–
6x16 Video Zip	–	49.00	39.00	–	–

INTEL Math Chips

80287-XL	49.00
80387-DX (Does All)	49.00
80487-SX (Does All)	183.00
Intel SX (Does All)	49.00
Intel SL Mobil	39.00

Lowest price on Intel overdrive chips

CYRIX Fasmath

Cyrix 33DX $39 Cyrix 40DX $79

Make Your 486 Run like a Pentium®

Kingston Turbo Chip – 3X Faster, for 486 Based Dx², Dx, Sx², Sx. . . . . ONLY $135.00
Out performs Intel overdrive Pentium 83

SIMM MODULES (Add $5.00 for SIPP)

	40NS	50NS	60NS	70NS	80NS	100NS
56 x 9	–	–	–	6.00	5.00	5.00
Meg x 9 (3 chip)	–	–	16.00	13.00	13.00	–
Meg x 9 (9 chip)	–	–	22.00	19.00	14.00	14.00
Meg x 9	–	–	41.00	39.00	39.00	–
6Meg x 9 (9 chip)	–	–	179.00	169.00	169.00	–

72 PIN SIMMS (FPM, EDO)

	60NS	70NS	80NS
56 x 36 1 mg	19.00	19.00	19.00
12 x 36 2 mg	36.00	34.00	34.00
meg x 36 4 mg	44.00	39.00	39.00
x 36 8 mg	74.00	69.00	69.00
x 36 16 mg	124.00	119.00	119.00
x 36 32 mg	249.00	244.00	244.00
6 x 36 64 mg	699.00	689.00	689.00
x 32 4 mg	34.00	29.00	29.00
x 32 8 mg	54.00	49.00	49.00
x 32 16 mg	109.00	104.00	104.00
x 32 32 mg	199.00	189.00	189.00
6 x 32 64 mg	509.00	499.00	499.00
x 32 4 mg EDO	36.00	29.00	29.00
x 32 8 mg EDO	54.00	49.00	49.00
x 32 16 mg EDO	109.00	104.00	104.00
x 32 32 mg EDO	199.00	189.00	189.00

DIMMS (168 pin)

APPLE		
1 x 64	8Meg	59.00
2 x 64	16Meg	111.00
4 x 64	32Meg	225.00
8 x 64	64Meg	449.00
16x64	128Meg	1995.00
DELL, OPTIPLEX, GXPRO 200		
3.3V ECC, EDD	8Meg	106.00
3.3V ECC, EDD	16Meg	209.00
3.3V ECC, EDD	32Meg	329.00
3.3V ECC, EDD	64Meg	709.00
DELL & GATEWAY		
3.3V SD RAM	*8Meg*	*109.00*
3.3V SD RAM	*16Meg*	*209.00*
3.3V SDRAM	*32 Meg*	*440.00*

ECC SIMMS

Pentium Pro 72 Pin (install in pairs) / SIMMS

16Meg	159.00	64Meg	2349.00
32Meg	319.00	128Meg	4628.00

AST MEMORY

Advantage 610, 810, 816	4Meg/8Meg/16Meg/32Meg/64Meg	39/78/124/248/469
Advantage Adventure 4000	4Meg/16Meg	39/124
Advantage Adventure 6000	4Meg/8Meg/16Meg/32Meg/64Meg	39/78/124/248/469
Advantage Adventure 8000	4Meg/8Meg/16Meg/32Meg	34/69/124/229
Advantage Pro 486 SX33, SX25	4Meg/8Meg/16Meg/32Meg	34/69/124/229
Bravo LC	4Meg/8Meg/16Meg/32Meg	34/69/124/229
Bravo LC 5100, 5133, 5166 (EDD, pairs)	4Meg/8Meg/16Meg/32Meg	39/69/144/249
Bravo MS	4Meg/8Meg/16Meg/32Meg	34/69/124/229
Bravo MS 5100, 133, 188 (EDD, pairs)	4Meg/8Meg/16Meg/32Meg	39/69/144/249
Bravo MS-T 6150 (pairs)	4Meg/8Meg/16Meg/32Meg	34/69/124/229
Manhattan G, V (pairs)	8Meg/16Meg/32Meg	69/129/239
Premmia 4/33, 4/50, MTE 433 (pairs)	4Meg/8Meg/16Meg/32Meg	39/69/129/239
Premmia 4/66D, SE 4/33, 4/68 (pairs)	4Meg/8Meg/16Meg/32Meg	39/69/129/239
Premmia LX P/60, MX 4/66, P75	4Meg/8Meg/16Meg/32Meg	34/59/119/219

All Other Models Available

NEC MEMORY

Ready 5010, 7010, 7020, 9010, 9022 (pairs)	4Meg/8Meg/16Meg/32Meg	39/69/119/239
Ready 9510, 9520, 9522, 9530, 9532 (pairs)	4Meg/8Meg/16Meg/32Meg	39/69/119/239
Ready 7022 (EDD, pairs)	4Meg/8Meg/16Meg/32Meg	39/69/129/249
Image P60, P90, D, P100E (pairs)	4Meg/8Meg/16Meg/32Meg	39/69/129/249

We Carry All NEC Memory

HEWELETT PACKERD MEMORY

Netserver 4/66LC-5/133LC (pairs)	4Meg/8Meg/16Meg/32Meg	49/79/129/249
Netserver LE 486SX33 – 486DX266	4Meg/8Meg/16Meg/32Meg	49/79/129/249
Netserver LH Plus 5/133, 5/166 (EDD, ECC)	16Meg/32Meg/64Meg/128Meg	Call
Netserver 4/33LM – 5/100LM (pairs)	4Meg/8Meg/16Meg/32Meg	49/79/139/249
Netserver 5/75LS – 5/133 LS4 (pairs)	4Meg/8Meg/16Meg/32Meg	49/79/139/249
Pavillion 5010-7170 (pairs)	4Meg/8Meg/16Meg/32Meg	49/79/129/249
Vectra 500 (EDD, pairs)	4Meg/8Meg/16Meg/32Meg	49/79/139/269
Vectra VA 6/180, 6/200 (EDO, pairs)	4Meg/8Meg/16Meg/32Meg	49/79/139/269
Vectra VE2 5/75 – 5/133 (EDO, pairs)	4Meg/8Meg/16Meg/32Meg	49/79/139/269
Vectra XA 6/180, 8/200 (EDD, pairs)	4Meg/8Meg/16Meg/32Meg	49/79/139/269
Vectra XM4 Series	4Meg/8Meg/16Meg/32Meg	49/79/139/269

We Carry Memory for ALL Models – Call

We also sell Memory for: Dell, Gateway, HP, DEC, Sun, Zenith, Acer, NEC and Epson

NO SURCHARGE FOR MASTERCARD, AMEX, VISA OR DISCOVER. PURCHASE ORDERS ACCEPTED FROM FORTUNE 2000, GOVERNMENT & INSTITUTIONS. California orders add 8.25%sales tax Returned orders or ordered wrong parts are subject to a 20% restocking fee (Memory chips not installed in boards.) We accept International orders shipped via UPS Air, APO, FPO orders welcome Customers are expected to pay customs and "other" charges if shipped Int'l. All credit card charges verified for fraudulent use SORRY, NO REFUNDS AFTER 30 DAYS – EXCHANGES ONLY. If you receive defective merchandise we exchange only—no refunds. We accept MC, VISA, Discover, AE, prepaid orders, purchase orders, wire transfer, COD (cashiers check) orders, cash & cashiers checks. Orders shipped by UPS, FEDX must be signed for.
• ALL MANFACTURER PART #'S ARE FOR REFERENCE ONLY • MINIMUM ORDER $40.00 • NO REFUNDS ON SHIPPING.

*certain restrictions apply. All prices final on date of sale.

IBM PS/1, PS/2 MEMORY MODULES

Aptiva 300, 500 Series	4Meg/8Meg/16Meg/32Meg	34/59/119/219
Aptiva 700 Series (pairs)	4Meg/8Meg/16Meg/32Meg	34/59/119/219
Aptiva A Series (pairs)	4Meg/8Meg/16Meg/32Meg	34/59/119/219
Aptiva C Series (EDD, pairs)	4Meg/8Meg/16Meg/32Meg	39/59/144/249
Aptiva M Series	4Meg/8Meg/16Meg/32Meg	34/59/119/219
PC 330 Models 6571-6576	4Meg/8Meg/16Meg/32Meg	34/59/119/219
PC 330 Model 6577 (EDD, pairs)	4Meg/8Meg/16Meg/32Meg	39/59/144/249
PC 340 (EDD, pairs)	4Meg/8Meg/16Meg/32Meg	39/59/144/249
PC 350 Models 6581-6585	4Meg/8Meg/16Meg/32Meg	34/59/119/219
PC 350 Model 6586 (pairs)	4Meg/8Meg/16Meg/32Meg	34/59/119/219
PC 350 Model 6587 (EDD, pairs)	4Meg/8Meg/16Meg/32Meg	39/59/144/219
PC 360	4Meg/8Meg/16Meg/32Meg	44/69/129/229
PC 730 Models 6875-6876 (pairs)	4Meg/8Meg/16Meg/32Meg	49/69/139/259
PC 730 Model 6877 (EDD, pairs)	4Meg/8Meg/16Meg/32Meg	39/59/144/219
PC 750 Models 6885-6886 (pairs)	4Meg/8Meg/16Meg/32Meg	49/69/139/259
PC 750 Model 6887 (EDD, pairs)	4Meg/8Meg/16Meg/32Meg	39/59/144/219
PC Server 310 (pairs)	4Meg/8Meg/16Meg/32Meg	49/69/139/259
PC Server 500 (ECC, pairs)	4Meg/8Meg/16Meg/32Meg	59/79/119/249
P/S 1, 30 Pin Simms	1/Meg/4Meg	12/39
P/S 1, 72 Pin Simms	4Meg/8Meg/16Meg/32Meg	49/79/139/249
P/S 2, 55SX, 65SX	4Meg	49
P/S 2, 53, 53LS, 56, 57	4Meg/8Meg	49/79
P/S 2, 95XP (ECC, pairs)	4Meg/8Meg	49/79
P/S 2 Server, 95, 195, 295 (ECC, pairs)	4Meg/8Meg/16Meg/32Meg	59/79/119/249

Call for All Rise 6000 Memory — Call for All Valuepoint Memory

IBM NOTEBOOK & LAPTOP MEMORY

Thinkpad 340, 345, 355, 360, C, CE	4Meg/8Meg/16Meg	49/109/189
Thinkpad 365C, CS, CD, E, ED	4Meg/16Meg	79/209
Thinkpad 365X, 365XD	8Meg/16Meg/32Meg	109/189/539
Thinkpad 500, 510CS	4Meg/8Meg/16Meg	79/109/219
Thinkpad 560	8Meg/18Meg/32Meg	109/189/539
Thinkpad 700, 720, 750, CL57SX	4Meg/8Meg/16Meg/32Meg	49/109/189379
Thinkpad 701, 701C	4Meg/8Meg/16Meg/32Meg	69/109/169/749
Thinkpad 730T, TE	4Meg/8Meg/16Meg	49/109/189
Thinkpad 755C, CE, CD, CS	4Meg/8Meg/16Meg/32Meg	49/109/179/339
Thinkpad 760C, CD, L, LD	4Meg/8Meg/16Meg/32Meg	99/179/339
Thinkpad 760E, ED, EL, ELD	8Meg/16Meg/32Meg	109/189/539

COMPAQ MEMORY MODULES

Deskpro 486/25, 33L, 50L	2Meg/8Meg/32Meg	39/99/249
Deskpro 3/25I, 33I, 4/25IS, 66I	2Meg/4Meg/8Meg	39/69/89
Deskpro 386, 486 M Series	2Meg/4Meg/8Meg	39/69/89
Deskpro M Series Expansion Board	0K (no memory)	119.00
Deskpro 450, 4100, 575, 590, 5100, 5133	4Meg/8Meg/16Meg/32Meg	34/59/119/219
Deskpro 575, 5120, 5133, 5150, 5160 (EDO, pairs)	4Meg/8Meg/16Meg/32Meg	34/59/139/249
Deskpro 2000, 4000, 6000 Series (EDD, pairs)	4Meg/8Meg/16Meg/32Meg	34/59/139/249
Deskpro 5/60M, 5/66M, XE560 (quads)	2Meg/4Meg/8Meg/16Meg/32Meg	39/49/69/139/239
Deskpro XL (pairs)	4Meg/8Meg/16Meg/32Meg	39/49/69/139/239
Deskpro XL 6150, 6200 (ECC, pairs)	8Meg/16Meg/32Meg/64Meg, 128Meg	Call
Presario 510, 520, 524, 660, 720, 724, 860	4Meg/8Meg/16Meg/32Meg	34/59/109/219
Presario 920, 924, 954, 974, 978, 992	4Meg/8Meg/16Meg/32Meg	34/59/109/219
Presario 833, 850, 860, 866	4Meg/8Meg/16Meg/32Meg	39/64/119/239
Presario 5528, 7110, 7152	4Meg/8Meg/16Meg/32Meg	34/59/109/219
Presario 7170, 7180, 9536, 9546, 9548, 9564 (pairs)	4Meg/8Meg/16Meg/32Meg	34/59/109/219
Presario 9232, 9234, 9240, 9250, 9642, 9660 (pairs)	4Meg/8Meg/16Meg/32Meg	34/59/109/219
Proliant 1000 5/60, 2000, R, 4000, R (quads)	4Meg/8Meg/16Meg/32Meg	39/64/119/239
Proliant 1500, 1500R (pairs)	4Meg/8Meg/16Meg/32Meg	39/64/119/239
Proliant 4500, 4500R (quads)	4Meg/8Meg/16Meg/32Meg/64Meg	39/64/119/239/599
Proliant 5000, 5000R (pairs)	32Meg/64Meg/128Meg/256Meg	Call
Prolinea 4/25S, 4/33, 4/66	2Meg/4Meg/8Meg	39/49/69
Prolinea (enhanced), MT	4Meg/8Meg/16Meg/32Meg	49/69/129/229
Prolinea 575, 590, 5100, 5120, 5133 (pairs)	4Meg/8Meg/16Meg/32Meg	39/69/119/239
Prolinea 5100, 5120, 5133, 5150, 5166 (EDD pairs)	4Meg/8Meg/16Meg/32Meg	39/69/139/259
Prolinea 575E, 100E, 120E, 575MX (pairs)	4Meg/8Meg/16Meg/32Meg	39/69/119/239
Prolinea 590MX, 5120MX (pairs)	4Meg/8Meg/16Meg/32Meg	39/69/119/239
Prolinea 6150E, 6180E (pairs)	8Meg/16Meg/32Meg	69/119/239
Prosignia 300 5/75, 5/90, 5/120, 5/150 (pairs)	4Meg/8Meg/16Meg/32Meg	39/69/119/259
Prosignia 500 5/90, 5/120, 5/150 (pairs)	4Meg/8Meg/16Meg/32Meg	39/69/119/259

COMPAQ NOTEBOOK & LAPTOP MEMORY

Armada 1120, T	8Meg/16Meg/32Meg/64Meg	119/199/Call/Call
Armada 4100, 4110, 4120, 4130	8Meg/16Meg/32Meg Kit	Call
Concerto 4/25, 433	4Meg/8Meg/16Meg	79/99/169
Contura 4/25, C, CX	4Meg/8Meg/16Meg	79/99/169
Contura 400C, 400CX, 410C, 410CX	4Meg/8Meg/16Meg	79/99/169
Contura 420C, 420CX, 430C, 430CX	4Meg/8Meg/16Meg/24Meg	49/79/169/239
Contura Aero 4/25, 4/33	4Meg/8Meg/16Meg	69/99/169
LTE 5000, 5100, 5200, 5300	8Meg/16Meg/32Meg/64 Meg Kit	99/149/266/513
LTE Elite 4140C, CX, 4/75CX	4Meg/8Meg/16Meg/24Meg	49/89/179/249

LASER PRINTER MEMORY UPGRADES

AMOUNT UPGRADED	OK Bd	256k	1	2	3	3.5	4	5	6	8	16	32
Brother 630, 631, 641, 645	–	–	69	89	–	–	–	–	–	–	–	–
Canon LBP 430	–	–	39	–	–	–	49	–	–	–	–	–
Canon LBP 860, 1260	–	–	–	39	–	–	69	–	–	94	144	309
Canon LBP4, 4Lite, 4plus	–	–	129	179	–	–	–	–	–	–	–	–
Epson 6000, Action Laser	–	–	–	129	–	–	229	–	–	–	–	–
Epson Action Laser 1100, 1600	–	–	69	70	–	–	99	–	–	199	359	–
Epson Action Laser II	–	–	74	–	173	–	–	272	–	–	–	–
Epson 8000, 1800, 4000, 4100, 4300	–	–	89	–	173	–	–	272	–	–	–	–
Epson 1000, 1500, 5000, 5200	–	–	–	89	–	–	178	–	–	–	–	–
HP 2, 2D–	–	–	–	69	–	–	99	–	–	–	–	–
HP 3, 3D, 3P, 2P 2P+	–	–	–	*69*	–	–	*99*	–	–	–	–	–
HP 4, 4M, 4SI, 4SIMX	–	–	–	49	–	–	59	–	–	99	–	–
HP 4P, 4PLUS, 4MPm 1600, 1600CM	–	–	19	29	–	–	49	–	–	89	–	–
HP 4L	–	–	34	–	–	–	–	–	–	–	–	–
HP 3SI	–	–	39	–	–	–	69	–	–	99	–	–
HP 5L	–	–	49	74	–	–	89	–	–	199	–	–
HP 5P, 5MP, 4V, 4MV	–	–	19	39	–	–	49	–	–	89	124	–
HP Design Jet 600, 650, 200	–	–	–	39	–	–	49	–	–	89	139	239
HP Deskjet 500, 500C, 510, 550, 560	–	*34*	–	–	–	–	–	–	–	–	–	–
HP Deskjet 1200C, 1200C/P	–	–	–	39	–	–	49	–	–	89	–	–
HP Paintjet XL300	54	–	–	–	–	–	69	–	–	144	299	–
IBM Laser 4019, 4019E	–	–	–	–	–	139	–	–	–	–	–	–
IBM Laser 4029, 4037	–	–	–	–	–	–	89	–	–	–	–	–
IBM Laser 4039, 4079	–	–	–	*69*	–	–	*89*	–	–	*189*	–	–
Konica LP-3110, 3115	–	–	119	189	239	–	–	–	–	–	–	–
Lexmark Medley 4C, 4x, 4SX	–	–	Call	Call	Call	–	–	–	–	–	–	–
Lexmark, Optra L, LX, R, RX	–	–	–	–	–	–	59	–	–	94	139	259
Lexmark Valuwriter 300,600	–	–	29	39	–	–	89	–	–	–	–	–
Lexmark Winwriter 200, 400, 600	–	–	29	39	–	–	89	–	–	–	–	–
NEC 90, 290	–	–	–	89	–	–	–	–	–	–	–	–
NEC 95, 97	–	–	–	79	–	–	–	–	–	–	–	–
Oki 400	–	–	–	79	–	–	–	–	–	–	–	–
Oki 400E, 400EX, 410E, 410EX	–	–	89	109	169	–	189	–	–	–	–	–
Oki 810E, EX, 600E, EX, 610E, EX	–	–	29	39	–	–	79	–	–	119	179	–
Oki 830, 840	–	–	–	89	–	–	–	–	–	–	–	–
Oki 2350, 2450	–	–	Call	Call	–	–	–	–	–	–	–	–
Packard Bell PB 9500	–	–	–	139	–	–	227	–	–	–	–	–
Packard Bell 9815	–	–	–	139	–	–	229	–	–	–	–	–
Panasonic 4420/4450I	–	–	–	99	–	–	169	–	–	–	–	–
Panasonic 4410/4430	–	–	–	*89*	–	–	*129*	–	–	–	–	–
Panasonic 4450	–	–	89	–	–	–	–	–	–	–	–	–
Panasonic 4400/5400	–	–	89	99	–	–	189	–	–	–	–	–
Panasonic 4440, 5410, 6500	–	–	79	99	–	–	159	–	–	–	–	–
Sharp 9400, 9460, 9600, 9700E	–	–	69	99	–	–	149	–	–	–	–	–
Sharp 9500, E, H, 9700, H	–	–	79	–	–	–	259	–	–	–	–	–
TI XL/PS17/PS35	–	–	49	–	–	–	–	–	–	–	–	–
TI Microlaser Pro E, Powerpro, Pro 600	–	–	89	129	–	–	189	–	–	329	–	–
TI Microwriter	–	–	79	119	–	–	–	–	–	–	–	–

CUSTOMER SERVICE & TECHNICAL: OPEN M–F, 9–4 PST

All products brand new & guaranteed • We buy excess inventory

Trademarks are registered with their respective companies.

L.A. TRADE

22825 Lockness Avenue • Torrance, CA 90501

BATTERIES

★ ★ CALL FOR NOTEBOOK AND LAPTOP BATTERIES ★ ★
Compaq, IBM, Toshiba, Epson, AST, TI and More!!

AcerNote 730-789 — $129
Compaq Contura 3/25, 4/25 — $119.00
Compaq Contura Aero — $109.00
Compaq Contura 410, 420, 430 — $109.00
Epson ActionNote 800, 866C, 880C — $134.00
NEC Versa E, V — $119.00
NEC Versa S — $119.00
Toshiba 610 and 400 — Call
Toshiba 1900, 1910, 1950, 1960 — $119.00
Toshiba 2400, 4700, 4800, 4900 — $119.00
Toshiba 2100 Series — $121.00

TOSHIBA LAPTOP MEMORY

MODEL	AMT. UPGRADED	MANU. PART #	PRICE
Tecra 500/P650	*8Meg/16Meg/32Meg/48Meg/128Meg*		*119/239/459/Call/Call*
Tecra 700 (SD RAM)	*8Meg/16Meg/32Meg*		*119/259/429*
Tecra 710, 720	*8Meg/16Meg/32Meg/64Meg/128Meg*		*119/259/429/Call/Call*
T2000SXE/2200SX/T1800, 1850, C	8Meg	PC-PA2000U	94.00
T2100, 2105, 2150, 2155, 2110, 2115	4Meg/8Meg/16Meg/24 Meg		69/89/189/229
T4500, C, T4600, T4700, T1900, C, T1910, T1950 (3.3 v)	4Meg	PC-PA2012U	69.00
T4500, C, T4600, T4700, T1900, C, T1910, T1950 (3.3 v)	8Meg	PC-PA2013U	79.00
T4500, C, T4600, T4700, T1900, C, T1910, T1950 (3.3 v)	16Meg/32Meg	PC-PA2014U	159/279
T3400CT, T2400, T3600	4Meg/8Meg/16Meg/24Meg	PC-PA2019U	89/119/179/Call
T100, 105, 110, 115	*8Meg/16Meg/32Meg*		*119/189/319*
T400, 405, 410, 415, 420, 425	*8Meg/16Meg/32Meg*		*119/189/319*
T400CS, 400CDT, T100, 105 Edo	*6Meg/16Meg/32Meg*		*110/180/310*
T600, 610, CT Edo	8Meg/16Meg/32Meg		119/189/319

NOTEBOOK, LAPTOP MEMORY

MODEL	AMT. UPGRADED	MANU. PART #	PRICE
ACERNote 730C, 735C, 760C, 760CX, 780CX	2Meg/4Meg/8Meg		49/69/99
ACERNote 763, 765, 782, 784, 786	4Meg/8Meg/16Meg		59/79/159
ACERNote Light 350, 352, 355	4Meg/8Meg/16Meg		69/99/169
ACERNote Light 356, 358, 359, 361 (pairs)	4Meg/8Meg/16Meg		69/99/169
ACERNote Pro 950, 954, 955, 957, 959 (pairs)	4Meg/8Meg/16Meg		79/109/189
Ambra N Series	*4Meg/8Meg/12Meg/18 Meg*		*89/109/139/189*
Ambra SN Series	4Meg/18 Meg		79/179
Ambra N-75, N-100	4Meg/8/16		49/89/169
AST Ascentia P30, P50	*8Meg/16Meg/32Meg*		*89/189/309*
AST Ascentia J10, J30, J50	*8Meg/16Meg/32Meg/40Meg Kit*		*99/189/Call/Call*
AST Ascentia 900N, 800N, 810, 910	8Meg/16Meg		99/189
AST Ascentia 950	8Meg/16Meg		99/189
AST Bravo & Explorer	*4Meg/16Meg*	*501255-001, -002*	*79/219*
AST Notebook Prem Exec 386SX/20/25/25L	4Meg	500814-003	69.00
AST Power Exec 3/25C, 425EL, 425SL	4Meg/16Meg	501166-001, -003	79/189
AST Power Exec 4/33SL	4Meg/16Meg	501318-001,002	79/189
AT&T Globalyst 130, 200, 250	4Meg/8Meg/16Meg		69/99/149
Austin OX4, DX2, SX2, SX Series	4Meg/16Meg		79/219
Austin Viste	*4Meg/8Meg/16Meg/20Meg*		*Call*
Canon Innova Book 150, 175	4Meg/16Meg		69/169
Canon Innova Book 200LS	4Meg/8Meg/16Meg/24Meg		69/99/219/349
Canon Innova Book 350CD, 360, 475	*8Meg/16Meg*		*69/169*
Canon Innova 486-10	4Meg/16Meg		79/219
CTX EZ Book 5x86 Pent, Series	*4Meg/8Meg/16Meg*		*Call*
DEC HiNote, Ultra HiNote	4Meg/8Meg/16Meg		69/109/189
DEC HiNote VP	*8Meg/16Meg/32Meg*		*69/189/299*
Dell Lattitude LM (pairs)	*4Meg/8Meg/16Meg*		*69/99/189*
Dell Lattitude 433, C, CX	4Meg/16Meg		79/199
Dell Lattitude LMP (pairs)	4Meg/8Meg/16Meg		79/119/199
Dell Lattitude LX, M	4Meg/8Meg/16Meg		79/119/199
Dell Latitude XP, XPI	4 Meg/8Meg/16 Meg		79/119/199
Epson ActionNote 650, 650c, 660c, 660cx	4Meg/8Meg/16Meg		69/109/189
Epson ActionNote 700, 700c, 700cx	4Meg/16Meg		79/189
Epson ActionNote 880, 866c, 890	4Meg/8Meg/16Meg/20Meg		59/89/159/199
Epson ActionNote 4LC/25, 4LC/33, 4SLC/2-50, 4000	6Meg		79.00
Everex Tempo LX, LX20, Carrier	2Meg	PCA 00053-0001	89.00
Fujitsu Monte Carlo	*8Meg/16Meg/32Meg*		*79/159/299*
Gateway 2000 Colorbook 4/33	4Meg/16Meg		69/179
Gateway 2000 Nomad 425 DXL/SXL	4Meg/16Meg		159/759
Gateway 2000 486 Handbook or Liberty	4Meg/16Meg		59/169
Gateway 2000 Solo Series	4Meg/8Meg/16Meg		79/109/199
Gateway 2100 Solo Series	8Meg/16Meg/32Meg		Call/Call/Call
Hitachi C-Series	*8Meg/16Meg/32Meg*		*99/189/369*
Hitachi M-Series	*8Meg/16Meg/32Meg*		*120/240/518*
HP Omnibook 300, 480, 425	2Meg/4Meg		83/129
HP Omnibook 530, 600	4Meg/8Meg/12Meg		69/89/149
HP Omnibook 4000	4Meg/8Meg/16Meg		69/89/169
HP Omnibook 5000	8Meg/16Meg/32Meg		89/169/319
Leading Edge Aviva 2000	4Meg/16Meg		69/179
Lexmark SE10	4Meg/8Meg		79/119
Magnavox Metalis	4Meg	286, 386SX	119.00
Micron Transport Pentium	8Meg/16Meg Kit		119/219
Midwest Micro Elite or Soundbook	4Meg/8Meg/16Meg		79/119/199
Midwest Micro Elite or Soundbook Plus or Sndbk II, IIP	4Meg/8Meg/16Meg		79/119/199
Midwest Micro Elite or Soundbook CD	4Meg/8Meg/16Meg		79/119/199
NCR Safari 3180, 3181	4Meg/8Meg		79/119
NEC Ultralite Versa, E, V, MP	4 Meg/8Meg/16Meg/20Meg	DP4104	64/99/199/299
NEC Versa S, Versa 2000C & 2000D, 500	4Meg/8Meg/16Meg		59/99/169
NEC Versa 4000, 4050/4080	4/6/16/32Meg		69/99/169/299
NEC Versa 6000	*8/16/32Meg*		*169/299/339*
Olivetti Echos P75-P1335 (pairs)	4Meg/8Meg/16Meg		89/129/219
Packard Bell 386SX, 286	4Meg	286, 386SX	89.00
Packard Bell Statesman	2Meg/8Meg		49/99
Panasonic CF-V21P, CF-580	4Meg/16Meg		69/169
Panasonic CF-V41	4Meg/8Meg/16Meg/32Meg		79/119/219/369
Seger Midern, all models	*4Meg/8Meg/16Meg/32Meg*		*Call*
Samsung Sens 810	8Meg/16Meg		Call
Sanyo 17/18 NB	2Meg	MBC-NBMEM2	89.00
Sceptre Soundx, all models	*4Meg/8Meg/16Meg*		*89/129/239*
Sharp 3030, 3070	*8Meg/16Meg/32Meg*		*109/170/349*
Sharp 6781, 6881, 6785, 6700, 6800, 6741	2Meg/4Meg		79/129
Sharp 8150, 8650, 8660, 7700, 7760	4Meg/16Meg		69/189
Sharp 8700, 8800, 8900	4Meg/8Meg/16Meg		69/109/189
Sharp 3010, 3020, 3050, 3060	4Meg/8Meg/16Meg		69/109/189
Sharp 9000, 9030	8Meg/16Meg/32Meg		79/189/399
Sharp 9040, 9070 (pairs)	4Meg/8Meg/16Meg/32Meg		69/129/265/525
TI 4000, TI 4000E, TI 4000M	4Meg/16Meg		140/719
TI 5000, 5100, 5200, 5300	*8Meg/16Meg*		*99/199*
TI 6020, 6030	*8Meg/16Meg/32Meg*		*210/390/Call*
TI Extensa, 450, 450T, 455, 455T, 570	4Meg/8Meg/16Meg		59/99/169
TI Extensa, 550, 555, 560, 565 (pairs)	*4Meg/8Meg/16Meg*		*59/99/169*
Tandy 2820, 3820, 3830	2Meg/4Meg/6 Meg		65/99/135
Tulip, all models	*4Meg/8Meg/16Meg/32Meg/64Meg*		*Call*
Twinhead, Altima, Compudyne, 486SX, DX, Tandy 4860	4Meg/16Meg		79/189
Twinhead Slimnote 5	4Meg/8Meg/16Meg		79/99/189
Ultra 486 TS38	4Meg/8Meg/16Meg		79/99/189
Winbook XP	16Meg/32Meg		79/229/469
Zeos 386SX Notebook (not the + version)	2Meg		49.00
Zenith Master Sport SL, SLE, 600, 620, 625NL	2Meg	ZA-4-4	69.00
Zenith Z-Note 425LN, LNC, LNP	4Meg		85.00
Zenith Z-Note MX	4Meg/8Meg/16Meg		69/99/179
Zenith Z-Star 4/33	2Meg/8Meg		49/99
Zenith Z-Star EX	*4Meg/8Meg/16Meg*		*59/109/169*

PCMCIA VERSION 2.0

MODEL	PRICE	MODEL	PRICE
S-RAM Cards 1MEG	$119	6X CD Rom	$398
S-RAM Cards 2MEG	199	8X CD Rom	449
28.8/14.4 Data/Fax Modem	159	*SCSI Type II*	*139*
14,400/14,400 Data/Fax Modem	59	*Audio Card*	*149*
Readwriter Card (ISA Slot)	149	Multimedia Combo, Sound/SCSI	499
Lan Ethernet (Coax), (10 Base T)	89	Type III 340 Mg Hard Drive	479
28.8 Comm. from Simple w/SimpliJack	219	33.6 Data Combo Card 33.6/14.4 & Ethernet	399

FLASH RAM (ATA) — Works with Digital Cameras Kodak DC-50 & More
4 Meg–139 8 Meg–199 16Meg–299 20Meg –379 NON ATA–CALL

HARD DISK DRIVES

SEAGATE		MAXTOR			WESTERN DIGITAL		
1.2 GIG	$207	1.0 GIG	7850 AV	$179	850MB	AC2850	$180
2.1 GIG	299	1.2 GIG	71260 AV	199	1.2 GIG	AC31200	229
		1.6 GIG		239	1.6 GIG	AC31600	259
		2.0 GIG		276	2.1 GIG	$339 2.5 GIG	$389

HARD DRIVES FOR LAPTOP & NOTEBOOK

IBM		NEC		UNIVERSAL FOR ALL NOTEBOOKS AND LAPTOPS	
THINKPAD 355, 360, 370,		Versa E, V, M, P – 1.3 GIG	$769		
750, 755 – 810mg	$499	2.1 GIG	889	810mg	$419
1.3 GIG	786	Versa 2000,4000 – 810mg	$499	1.3 GIG	769
2.1 GIG	889	1.3 GIG	768	2.1 GIG	849
THINKPAD 760 – 1.3 GIG	$768	**TOSHIBA**			
COMPAQ		4700/4800 – 810mg	$499		
LTE 5000,5100–810m	$519	1.3 GIG	786		
1.3 GIG	665	Tecra T700 – 810mg	$749		
2.1 GIG	910	1.3 GIG	829		

310-539-0019
FAX: 310-539-5844

SECURITY WILL CALL WINDOW NOW OPEN

CALL TOLL FREE **1-800-433-3726** (US and Canada)

ESTAB. 1985

Prices & Availability Subject to Change Without Notice

Mon-Fri, 8:00 a.m. to 5:00 p.m. PST
Sat. 10:00 a.m. to 12:00 noon

Sales/Orders: latradesls@aol.com Customer Service: latradecsd@aol.com Price Inquiries: latradeinq@aol.com

MORE PROFIT! MORE SALES! MORE CUSTOMERS!

SYSTEMS START AT $395.

Save Time, Reduce Theft, Speed Checkout with

The General Store Retail Management System

Since 1983, **The General Store** has been the system of choice by thousands of retail and chain stores nationwide. Known for its ease of use, flexibility, and lightning speed, **The General Store** is ideal for most retail environments. At $395, **The General Store** starter kit offers over 250 of the most desired point of sale features. A clerk can learn to use it in minutes. Your customers are processed in seconds.

THE GENERAL STORE — SOFTWARE

PC AMERICA
HARDWARE SOLUTIONS

Flexible Enough for Any Business

- apparel/clothing/shoe
- appliance
- art gallery
- automotive/tire
- beauty salon/supply
- bicycle/motorcycle
- book
- bridal and tuxedo
- card shop/gift shop
- computer
- convenience/fast food
- dry cleaner
- eyeglass
- florist
- furniture
- gas station
- sporting goods/golf/gun
- grocery/bakery
- hardware/locksmith
- health/fitness center
- janitorial supply
- lawn and garden
- jewelry
- liquor
- mail order
- marine supply
- music/record and tape
- nail salon
- office supply/stationery
- pet
- pharmacy
- photography
- plumbing & heating
- specialty stores
- toy /hobby
- sports cards/uniform
- ...and YOUR STORE!

Increase your profits by more than 25%

Computerization pays for itself, saving you thousands of dollars, giving you peace of mind, and making the best use of your time. The General Store, with over 250 of the most desired point of sale features, will help you leapfrog past your competition by controlling costs, reducing errors and increasing efficiency.

- **Quicker Checkout**-barcode scanning (50% faster than a cash register), instantaneous no wait receipt printing system, automatic credit card verification, split tender, product lookup by any word, new items added at POS
- **Increased Accuracy**-100% accurate built-in barcode scanning and printing, instant price lookup, price quotes, serial number tracking, multiple pricing levels, multi-unit pricing (i.e. 3/$1.00)
- **Reduced Theft**-cash register reconciliation, salesperson tracking, password protection, pole display sale verification, accurate inventory tracking
- **Cost Reductions**-real time inventory control, dynamic update of item sales and inventory data, reorder point alarms, extensive reporting capabilities, multi vendor P.O. selection (5 vendors per item)
- **Better Business Decisions**-detailed reports and financial statements showing the status of your business, charge account credit limit checking, parts explosion for kits tracks every inventory item, built-in general ledger, accounts receivable and accounts payable
- **Better Customer Service**-customer purchase history, complete layaway, mail list management, instant customer lookup, multiple price level support by category of customer
- **Unique Features**-powerful size/ color matrix for clothing and shoe stores, electronic scale compatibility, convenience store/gas station pump compatible, supports 99 work stations per store, multi-store ready, FREE file conversions from 32 other POS systems

FREE!
Take a FREE 30-day General Store Test Drive
(call now for details)

PC AMERICA PRICE LIST

Using another P.O.S. system? Call for **SPECIAL COMPETITIVE UPGRADE PRICE!!!!**

The General Store Professional Edition (single user, multisite ready)	**$1,295.00**
The General Store Network Edition (multisite ready)	**$1,995.00**
The General Store Starter Kit (abridged version)	**$395.00**
Cash Drawer	~~$199.00~~
Star/Citizen Receipt Printers	~~$299.95~~
Pole Display	~~$299.00~~
CCD Bar Code Reader	~~$399.00~~
Laser Bar Code Scanner	~~$429.00~~

*** Call for Competitive Prices**

DEALERS WANTED!
Join our new dealer program. It's **FREE.** It's the fastest way to make money...**AND** we make it **EASY.** Call now for details.

1-800-PC-AMERICA

Call Toll Free 1-800-722-6374

PC America
60 N. Harrison Ave.
Congers, NY 10920

Phone: 914-267-3500
Fax: 914-267-35

Circle 195 on reader service card

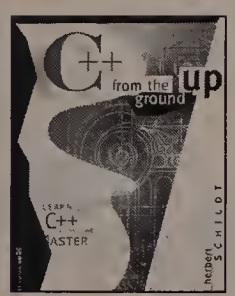
Values to $149.80

TAKE ANY 5 BOOKS FOR ONLY $4.95

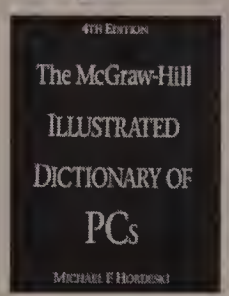
when you join

THE COMPUTER BOOK CLUB®

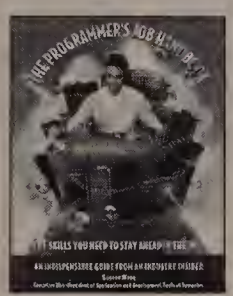
8821827-XX $29.95
Counts as 2



8819695 $27.95

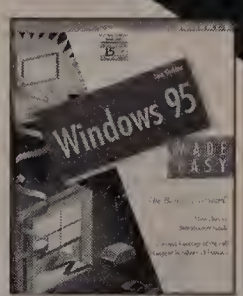


0304106 $24.95

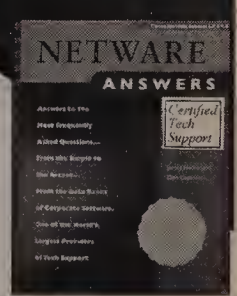


8821371 $24.95

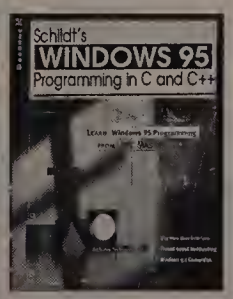
8821525 $24.95



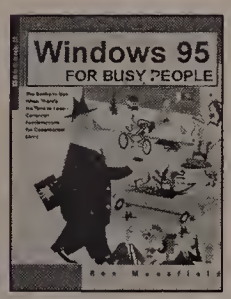
8820901 $27.95



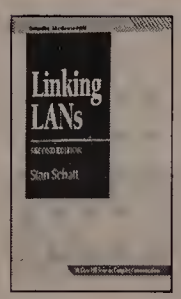
8820448 $16.95



8820812 $29.95

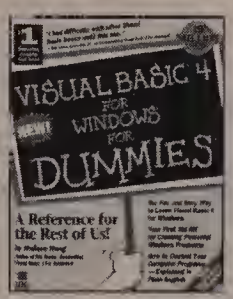


882110X $22.95

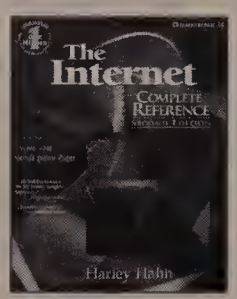


0570639-XX $45.00
Hardcover/Counts as 2

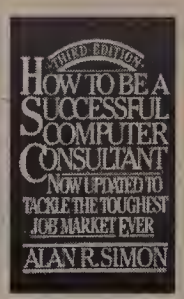
8821428 $29.95



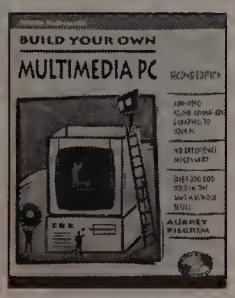
5873141 $19.99



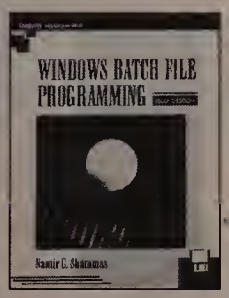
882138X-XX $32.95
Counts as 2



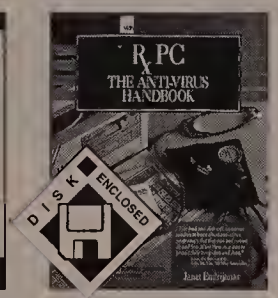
0576173 $30.00
Hardcover



9122264-XX $39.95
Counts as 2

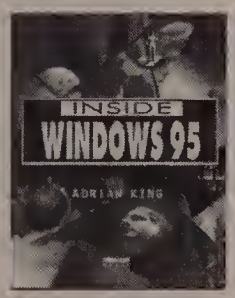


9120482-XX $39.95
Counts as 2



0196230-XX $39.95
Hardcover/Counts as 2

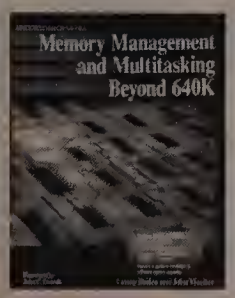
8820251 $24.95



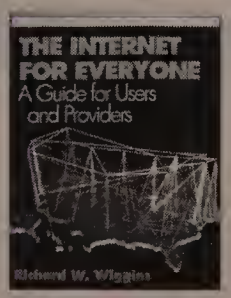
5869632 $24.95

0242070 $19.95

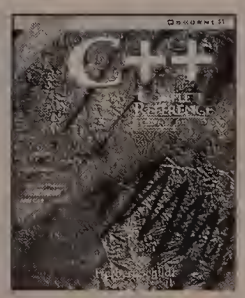
7091906-XX $24.95
Counts as 2



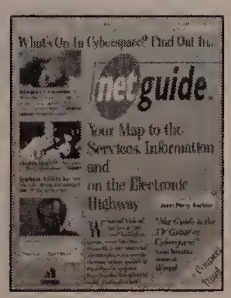
0031207 $29.95



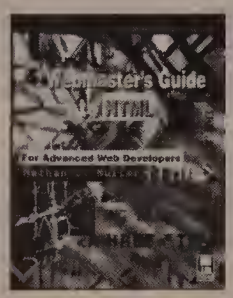
0670196 $29.95



8821231-XX $34.95
Counts as 2

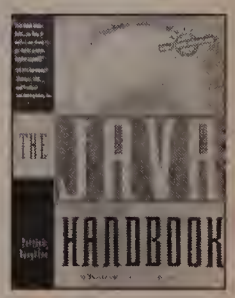


5866617 $19.00



9122736-XX $34.95
Counts as 2

0549486-XX $39.95
Counts as 2



8821991 $27.95

As a member of THE COMPUTER BOOK CLUB® . . . you'll enjoy receiving Club bulletins every 3-4 weeks containing exciting offers on the latest books in the field at savings of up to 50% off of regular publishers' prices. If you want the Main selection, do nothing and it will be shipped automatically. If you want another book, or no book at all, simply return the reply form to us by the date specified. You'll have at least 10 days to decide. If you ever receive a book you don't want due to late delivery of the bulletin, you can return it at our expense. And you'll be eligible for FREE BOOKS through the Bonus Book Program. Your only obligation is to purchase 3 more books during the next 2 years, after which you may cancel your membership at any time. **PCW197**

PHONE 1-614-759-3666 (8:30 a.m. to 5:30 p.m. EST Monday-Friday) • FAX 1-614-759-3749 (24 hours a day, 7 days a week)
If card is missing, write to: The Computer Book Club®, *A Division of The McGraw-Hill Companies*, P.O. Box 549, Blacklick, OH 43004-9918
All books are softcover unless otherwise noted. Publishers' prices shown. If you select a book that counts as 2 choices, write the book number in one box and XX in the next. A shipping/handling charge and sales tax will be added to all orders. ©1997 CBC®

MIDWEST COMPUTER WORKS

Where Corporate America Shops!

Best Buy of 1995 — Computer Shopper

✓ Knowledgeable Sales Staff ✓ Fast Delivery ✓ Quality Top Name Brands ✓ Technical Support

PRINTERS

Canon
BJ-30 /BJC-70 ....255/299
BJC-210/8JC-240 ....149/179
BJC-4200 279
BJC-4550 499
BJC-620 ....720dpi Color 399

EPSON
LQ570+ / LQ2170 ....249/529
Stylus 500 279
Stylus Color Pro 369
Stylus Pro XL (12.5"x18") 1699

FARGO
Fotofun 3x5 color printer 425
Primera Pro 1339
Primera Pro PS w/ Photoshop 1849

HEWLETT PACKARD
DeskJet 680C, 5ppm 600dpi 299
DeskJet 820CXI, 8ppm 600dpi 385
DeskJet 870CXI, 8ppm, 600dpi 479
DeskJet 1600C/DeskJet 1600CM 1299/1939
LaserJet 4V 16ppm 600dpi.*11x17* 1899
LaserJet 4MV 16ppm 600dpi.*11x17* 2772
LaserJet 5LFS 4ppm 600dpi 449*
LaserJet 5, 12ppm 4MB 1259
LaserJet 5M, 12ppm 6MB 600dpi 1725
LaserJet 5N, 12ppm 600dpi, e-net 1529
LaserJet 5SI 24ppm 2779
LaserJet 5SIMX 17ppm 600dpi 3892
LaserJet 6P 8ppm 600dpi 749
LaserJet 6MP 8ppm 600dpi Pstscrpt 939
Color LaserJet 5, 12ppm 4MB 600dpi 5829
Copyjet Color Inkjet 2339
*-Includes $20.00 Mail-in Rebate Exp. 12/31/96

LEXMARK
Optra E 6ppm 1MB 600dpi 519
Optra R+ 12ppm 2MB 1200dpi 1249
Optra RN+ 16ppm 4MB 1200dpi 1539
Optra LX+ 16ppm 4MB 1200dpi 1849
Optra NT240 24ppm 4MB 600dpi 2849

OKIDATA
184 Turbo 225
320 / 321 ....315/442
520 / 521 ....379/489
590+ / 591+ 439/599
395 / 395c 999/1099
600e/610e/610ePS 399/489/699
Laser 810 LED 8ppm/1200 ....699/985
OkiJet 2010 ....COLOR!!! 289

Panasonic
KXP-3626 / KXP-3696 ....409/449
KXP-6100 / KXP-6500 ....409/439

QMS
Magicolor CX Laser, 8M, 12ppm 600dpi ...5395
Magicolor CX Laser, 20M, 12ppm 600dpi.5995

SEIKO
Smart Business Card Reader 199

PLOTTERS

CALCOMP
Designmate 3024S 8-pen D-size, ser 1279
Designmate 3024M 8-pen D-size, par 1549
Designmate 3036S 8-pen E-size, ser 1729
Designmate 3036M 8-pen E-size, par 1979

HEWLETT PACKARD
Designjet 330 D-size 24/E-size 36 .1799/2449
Designjet 350C D-size/E-size 36 ....2249/2879
Designjet 700 D-size 24/E-size 36 .3599/4399
Designjet 750C D-size 24/E-size 36 ....5199/5999
Techjet 720C D-size 24 /E-size 1999/2399

NETWORKING

CISCO ISDN Access Router 739
CISCO IP/AT Serial Router 1369

3Com
3C509B Etherlink III ISA coax 109
3C509BTP Etherlink III ISA 10BT 105
3C509B Combo Etherlink III ISA coax & 10BT ...119
3C579 Etherlink III EISA coax or 10BT 223
3C590TPO Etherlink III PCI 10BT 119
3C595TX Fast Etherlink PCI 10/100BT 159
Superstack II 12-port Hub 499

ARTISOFT
Lantastic Upgrade V1.0 Win 95 CD 69
Lantastic V1.0 Win 95 Starter Kit 259
Lantastic V7.0 1-user/5-user 79/319
Lantastic V7.0 Network Starter Kit. 219

Digi
ALL MODELS IN STOCK ....CALL TODAY!

intel
EtherExpress 16C combo 11B
EtherExpress Pro 10+ combo 116
EtherExpress Pro 10/100 PCI 209
EtherExpress Flash 32 EISA combo 199
Netport Express Ethernet 369

LINKSYS
Combo **PCMCIA** Ethernet Card 129
Combo Ethernet Adapt 6-pack 225
Combo Ether 16 LAN Card 39
10BT 16-Port Hub 269
100B-TX 12-Port Hub 1119

MICRODYNE
NE2000+ 10BT/COAX 75/75
NE4200 **PCMCIA** 10BT or COAX 157

NETGEAR
EN104 4-port 10BT Hub 79
EN116 E-net 16-port 10BT Hub 239
RT211 ISDN Router 459
SW507 E-net 10/100 Switch 895

PACIFIC DATA PRODUCTS
DirectNet 10BT Print Server for HP LaserJet 4 279
DirectNet EX external print server/XIO 315/299

SMC
Arcnet PC130 / PC270E 72/98
Arcnet PC600 Workstation 119
Arcnet Hubs 8-port active coax 219
Elite16C Ultra Ethernet COMBO coax & 10BT 102
Etherpower 10/100 PCI 10BT 139
Tigerhub TP6 10BT Hub (6-port) 162

THOMAS-CONRAD CORPORATION by COMPAQ
3047CX 32-bit EISA 100MB 597
3045-CX 100mbps ISA coax 439

TRENDWARE
TE-16XP/CT 16-bit Xpress Combo ISA 29
TE-16PnP Plug-n-Play Combo ISA 35
TE-200CT PCMCIA II Combo RJ45 99
TE100-PCI 10/100 PCI Card 99
TE100-HB 8-port 100Base-TX Hub 629

Xircom
Creditcard IIPS Ethernet 10BT 132
Creditcard IIPS Ethernet COMBO 10BT & coax 169
Pocket Ethernet Print Server..Coax or 10BT ..279

NOVELL
Call for discount pricing on all NetWare Software!
NetWare 3.11 to 3.11 ....BEST PRICES ....CALL
NetWare 4.1 5-user 769
NetWare 4.1 10-user 1749

DESKTOPS

Wyse Terminals ....*ALL MODELS IN STOCK*

Business Class PC's

AST
8ravo MS P-100 1.2G8 16M 1149
Bravo MS P-133 1.2G 16M 1349
8ravo MS P-166 1.2G 16M 1679
Bravo MS-T, P-100 1.2G 16M 1249
Bravo MS-T, P-133, 1.2G 16M 1429
Bravo MS-T, P-200, 2G 16M 2199

COMPAQ
Deskpro 2000 P-100 1.2G 8M 1149
Deskpro 2000 P-120, 1.2G 8M 1199
Deskpro 4000 P-133, 1.6G 16M 1679
Deskpro 4000 P-166, 2.5G 16M 2149
Deskpro 6000 P-180 2.1G 32M 3299
Deskpro 6000 P-200 1.08G 32M 2999
PROSIGNIA, PROLIANT 1500-5000 .8EST PRICES

HEWLETT PACKARD
Vectra VL4, P-100, 1.2G 16M 1499
Vectra VL4, P-133, 1.2G 16M 1659
Vectra XA, PP-180, 2.5G 32M 3099
Vectra XA, PP-200, 2.5G 32M 3329
Vectra XU, PP-200, 2G 32M 4xCD 4299

IBM
PC350 P-100 1.2GB 16M 1579
PC330 P-133 1.2G8 16M 1749
PC350 P-166 1.6G 16M 2199
PC730, P-100, 1.2G 16M 1659
PC750, P-100, 1.2G 16M 1759
PC750, P-133, 1.2G 16M 1979

Business Class Servers

AST
Manhatten S, PP-200, 2G, 32M, 4xCD 8495
Manhattan S, PP-200, 2x2G, 64M, 4xCD ...11,299
Manhattan S, PP-200, 2.3G, 64M 7359
Manhattan S, PP-200, 4.3G, 64M 8149

COMPAQ
Prosignia 300, P-120, 2.1G, 16M 2499
Prosignia 500, P-150, 2.1G, 32M 3699
Prosignia 500, P-150, No HD, 32M 2849
Proliant 1500, P-166, 2x4.3G, 32M ...11,299
Proliant 5000, PP-166, 128M 15,499
Proliant 5000, PP-200, 128M 19,799

HEWLETT PACKARD
Netserver LC, P-166, no HD, 32M 2499
Netserver LC, P-166, 2.1G, 32M 3399
Netserver LH, PP-200, No HD, 32M 7929
Netserver LH, PP-200, No HD, 64M 9999
Netserver LX, PP-200, No HD, 128M19,349

IBM
PC Server 320, P-133, 2.25G, 16M ...q4659
PC Server 320, P-166, 2.25G, 32M 6999
PC Server 520, P-100, 4x2.25G, 32M 10,499
PC Server 720, P-166, 2x2.25G, 128M 19,999

Multimedia PC's
(Models listed below come complete with an integrated 8X CD-ROM drive, 28.8 or higher modem & more.)
AST Cinderella 9308 P-166, 2.5G 24M 2199
AST Advantage 829 P-200, 2.5G16M 2699
Canon Innova 9210 P-120, 1.6G 16M 1499
Canon Innova 9350 P-133, 1.6G 16M 1799
Canon Innova 9610 P-166, 2.1G 16M 2229
Compaq Presario 8702 P-166, 2.5G 24M 2449
Compaq Presario 4716 P-200, 2.5G 32M 2799
Compaq Presario 6708 P-200, 2.5G 32M 2949
HP Pavilion 7208P P-166, 2.5G 16M 2399
HP Pavilion 7275Z P-166, 2.5G 32M 2599
IBM C57 P-166, 2.5G 16M 2329
IBM Aptiva S64 P-166 2.5G 16M 2629
IBM Aptiva S78 P-200, 3.2G 32M 3099

NOTEBOOKS

AST
Ascentia J 20 P- 100 8/800M 11.3" Dual 1479
Ascentia J 30 P-100 8/800M 10.4" Dual 1635
Ascentia J 50 P-133 8/800M 10.4" TFT ..2149
Ascentia P30 P-100 1.2G 8M 4xCD 11.3 Dual.2259
Ascentia P50 P-133 1.2G 8M 4xC0 11.3 Act ...3499

Canon
Notejet III P-75 540M 8M 10.4" TFT 3759
Notejet 3CX P-90 810M 8M 11.8" TFT 4799
Notejet 3CX P-120 1.2G 8M 11.8" TFT 5499

COMPAQ
Armada 4110 P-100 8/810M 10.4" Dual 2433
Armada 4120 P-120 16/1.08G 11.8" TFT 3079
Lte 5250 P-120 810M 10.4" Act Clr 3599
Lte 5300 P-133 16M/1.35G 12.1" Act Clr 4729
Lte 5380 P-133 16M/2.1G 12.1" Act Clr 5749

HITACHI
C100T P-100 720M 8M 10.4" TFT 1989
C120T P-120 1G8 8M 11.8" TFT 2695
E100D P-100 810M 8M 11.3" Dual 1789
E133T P-133 810M 16M 11.3" TFT 2589
M120T P-120 1G8 16M 11.8" TFT 4xCD 3559
M133T P-133 1G 16M 11.8" TFT 6xCD 4229

IBM
365X P-100 810M 8M 10.4" Dual 1969
365XD P-120 1.08G 8M 11.3" Dual 2499
560 P-100 810M 8M 11.3" Dual Scan 2598
560 P-120 810M 8M 12.1" TFT 3629
760ED P-133 1.2GB 16M 12.1" TFT, CD..5899
760EL P-133 1.08G8 16M 12.1" Active ...4429

MAGITRONIC
601ES108 P-100 810M 8M 10.4" Dual 2299
601ESCI0 P-100 810M 8M 6xC0 10.4" Dual 2399
610 P-133 2.1G 16M 12.1" Active 3699
620TF132, P-133, 2.1G 16M 6xC0 12.1" Act 3989

NEC
Versa 4050C P-90 810M **w/CD** 10.4" Actv 2249
Versa 6000H P-100 16/1G8 **w/CD** 11.3" TFT ..3449
Versa 6030H P-133 16/1.35G8 **w/CD** 12.1" TFT ..4429
Versa 6030X P-133 16/1.44G8 12.1" TFT 4729

olivetti
Echos P-100 1.3G 8M 11.3" Dual 6xCD 2049
Echos P-100 1.3G 8M 10.4" TFT 6xCD 2549
Echos P-120 1.3G 8M 11.3" TFT 6xCD 2949
Echos P-133 1.3G 8M 11.8" TFT 6xCD 3749

TOSHIBA
T110CS P-100 810M 8M 11.3" Dual 1579
T420CDS P-100 810M 8M 11.3" Dua, CD ...2159
T420CDT P-100 1.2G 8M 11.3" Active, CD.2949
T610CT P-90 720M 8M 9.5" Active 1965
T650CT P-133 1.2G 16M 11.3" Active 3899
500CS P-120 1.2G 16M 11.3" Dual, CD 2949
500CDT P-120 1.2G 16M 12.1" TFT CD 4229
720CDT P-133 1.2G 16M 6xC0 12.1 Actv ..5285
730CDT P 150 2.0G 16M 6xCD 12.1" Actv .5885

TEXAS INSTRUMENTS
Extensa 570C0T P-100 1.2G 10.4" Actv 2749
Extensa 570C0TSE P-100 2G 8M 10.4" Actv 2949
TM6020 P-120 1.08G 8M 11.3" TFT 3899
TM6050 P-150 1.35G8 16M 12.1" TFT 4729

SHARP
PC3040 P-100 1.1G 8M 12.1 TFT 1499
PC 9020 P-120 1.1G 16M 12.1" Dual 6xCD ..2349
PC 9050 P-133 1.1G 16M 11.3" TFT 6xCD ...2819
PC 9080 P-133 1.3G 16M 12.1" TFT6xCD 4229
W-100D P-133 1.1G 16M 11.2" Dual 2739
W-100T P-133 1.1G 16M 11.2" TFT 3299

MONITORS

ADI
MicroScan 3VLR 14" .28mm 1024x768 269
MicroScan 4V 15" .28mm 1280x1024 349
MicroScan 5V 17" .25mm, 1280x1024 599
MicroScan 17X 17" .28mm, 1280x1024 879

EIZO
F2-15 15" .28mm 1280x1024 TCO 579
F2-17 17" .28mm 1280x1024 839
F2-17EX 17" .26mm1600x1200 TCO 949
T2-17TS 17" .25mm 1600x1200 TCO 919
TX-C7S 17" .25mm 1280x1024 1029
T2-20 20" .30mm 1280x1024 TCO 1819

MAG INNOVISION
0X1495 14" 1024x768 .28mm 259
DX1595 15" 1280x1024 .28mm 349
0X1795 17" 1280x1024 .26mm 599
DX700T 17" 1280x1024 .25mm 699
0X15T 15" 1280x1024 .25mm 369
0X17T 17" 1280x1024 .25mm 679
MXP17F 17" 1600x1280 .26mm 719
MX21F 21" 1600x1280 .28mm 1549

MAGNAVOX
78M749 14" VGA Mono 720x400 109
CM2099 14" VGA 1024x768.28mm 239
CM2015 15" 1024x768 .28mm 289
CM1215 15" EVGA 1024x768 .28mm 329
CM4018 17" 1280x1024 .28mm 595
20CM64 20" 1280x1024 .31mm 899
CM5600 20" 1600x1280 .28mm 1129

MITSUBISHI
Diamond Scan 15VX 15" 1280x1024 .26 ...379
Diamond Scan 17TX 17" 1280x1024 .25 ...679
Diamond Scan 20H 20" 1280x1024 .28 ...1349
Diamond Pro17HX 17" 1280x1024 .26 729
Diamond Pro21TX 21" 1600x1200 .30 1699

NEC
XV15+ 15" 1024x768 .28mm 429
XE21 21" 1280x1024 .28mm 1699
XP17 / XP21 ....1049/1989
C500 15" .28 PnP 1280x1024 375
M500 15" .25 1280x1024 479
M700 17" .25 1280x1024 759

NOKIA
449E 15" 1280x768 .28mm 449
449X 15" 1280x1024 .26mm 549
447L 17" 1280x1024 .28mm MPRII 679
447X 17" 1600x1200 .25mm MPRII 899
445X 21" 1600x1200 .25mm MPRII 1759

SONY
CPD-100SX 15" 1280x1024 .25mm 379
CP0-100SF 15" 1280x1024 .25mm* 449
CPD-200SX 17" 1280x1024 .25mm 649
CP0-200SF 17" 1280x1024 .25mm* 749
G0M-17SE2T 17" 1600x1200 .25mm* 959
CPD-300SFT 20" 1280x1024 .30mm* 1579
CPD-20SF2 20" 1600x1200 .25mm TCO* ..1599
*- On-screen Display of Digital Controls

ViewSonic
V15ES 15" 1024X768 .28mm 345
V17EA 17" 1024x768 .27mm 599
P810 20" 1600X1280 .25mm 1539

VISIONMASTER by iiyama
MF-8617E 17" 1280x1024 .26mm 699
MF-8221E 21" 1600x1200 .28mm 1529
MT-9021E 21" 1600x1200 .30mm 1639

DRIVES

CD-ROM DRIVES
CSD-880E 8x ATAPI Kit ....
Disctec CD6X / CD8X 219
Microsolutions 4X Par Port ....
NEC 8XI/8XE 329
Panasonic KXLD-740 2 PCMCIA ...
Pinnacle Micro 10Xtreme ....
Plextor 8Plex 8x 115ms SCSI-2 int
Sony PRD-250 Discman Kit ....

CD RECORDABLE DRIV
HEWLETT PACKARD
Surestore 4020I Int. CD-R ....
PINNACLE MICRO
RCD 5040 CD-R int/ext 669

REMOVABLE STORA
IOMega Ditto 800 800MB parallel
IOMega Ditto 3.2G int. Travan ....
IOMega Zip Drive - **IN STOCK** -..
IOMega Jaz 1.G8 int. ....
Panasonic LF 7304 1.5G8 int ....
Pinnacle Micro Vertex 2.6GB Kit.
Syquest EZ135 int. ....
Syquest EZ-Flyer 230 Par. ....

TAPE BACKUPS
Conner Tapestor 3.2G ext. SCSI. ....
Sony Store Station 2G (w/Navigator Sftwre)...
COLORADO MEMORY SYSTEMS
Powertape 1GB/ 2G8 63
Powertape 4G8 Int. ....

HARD/FLOPPY DRIV
Microsolutions Par. Port Floppy ...
Microsolutions Backpack 1.2G Par.
Sony 1.44M8 3.5" Floppy ....
Teac FD505 Dual Floppy ....
MICROPOLIS
4221 2.1G8 SCSI ....
1991W 9.0G Wide ....
Quantum
8igfoot 1.28G FATA ....
QM34300 4.2G8 SCSI ....
Seagate
ST3630A 630M ATA ....
ST51080A 1G8 ATA ....
WESTERN DIGITAL
ACS2850 850M EIDE ....
2100RTL 2.1GB EIDE ....

SCANNER

AGFA Arcus II ....
Calcomp ScanPlus III E-Size 36x72 ....
Nikon Super Cool Scan LS-1000 ....
Nikon Scantouch AX-1200 flatbed...2400 dpi
FITEC
ViewScan A20000 Color Handheld 600dpi ...
ViewStation AT3 Color 1-Pass 2400dpi ....
ViewStation AT6 Color 1-Pass 30-BIT ....
ViewStation A6000C+ Color 1-Pass 2400dpi
HEWLETT PACKARD
ScanJet 4S / ScanJet 4SI 199
ScanJet 4P/ ScanJet 4C 4
MICROTEK
PageWiz..Compact 300dpi, Parallel ....
ScanMaker E3 w/Imagestar NEW!! 24-bit Clr ....
ScanMaker E6 Standard ....
Polaroid
Sprint Scan 35/LE....FILM SCANNER ....
Sprint Scan 35/Enhanced Software.FILM SCANNE
UMAX
PageOffice/ PageOffice Color 19
Vista S6E 600dpi w/ Photodeluxe ....
Vista S12 600X1200dpi, w/Photoshop LE ....
Powerlook II w/Trans. Adapter & Phtshp LE ....
*-Includes $20.00 Mail-in Rebate Exp. 1/15/9

PERIPHERALS

CONTROLLERS
Acculogic Side VL EIDE 2 ser. 1 par 79
AdvanSys ABP-542 SCSI-2 ISA PnP 135
AdvanSys A8P-940 SCSI-2 PCI PnP 160
8oca I0E 2-H0D, 2-FDD IDE002 29
GSI Model 18 Eide Controller 49
GSI Model 4C 2-Channel I0E Controller 69
Promise EIDE 2300 Plus VLB/ EI0E Pro ISA..49/49
Promiee SCSI Max PCI/Ultra PCI 159/185

adaptec
AHA-1522A Single SCSI-2 ISA 75
AHA-1542 SCSI-2 ISA w/Flop Kit 199
AHA-2842 SCSI-2 VL8 w/Flop Kit 229
AHA-2742 SCSI-2 EISA w/Flop Kit 345
AHA-2940 PCI SCSI Master 249
AHA-2940UW Ultra PCI Kit 284

CPU UPGRADES

intel
Pentium 100MHz CPU / Pentium 120MHz CPU ...135/165
Pentium 133MHz CPU / Pentium 150MHz CPU ...249/339
Pentium 166MHz CPU / Pentium 180MHz CPU ..479/589
Pentium Pro 200MHz CPU 679

Cyrix
386 to 486 CPU Upgrades and Math Chips ..CALL

VIDEO BOARDS
Hercules Stingray Pro 1MB PCI or VLB 79
Hercules Terminator 64 2MB PCI 145
Hercules Dynamite Power 2M VL8 129
Number 9 9FX Motion 771 PCI 2M VRAM 239

ATI
Graphics XPression ....PCI....1M8 89
Graphics XPression ....ISA....1MB 89
Graphics Pro Turbo 2MB PCI 225
WinTurbo 2M PCI 209
3-0 Xpression 2M8 PCI/3-D Xpres+ New!149/CALL

DIAMOND
Stealth 64 Video 3240XL VRAM 2M 219
Edge 3D 2120XL PCI 99

matrox
Millennium 30 PCI 2M 179
Millennium 3D PCI 4M 249
Mystique PCI 2M & 4M 169/219

VIDEO CAPTURE
AITech Pro PC TV Plus 139
AITech Wavewatcher/TV2 280
ATI Video 8asic 179
Intel Smart VideoPro 398
PictureTel Live PCS50 w/headset ISA .2599
TrueVision Targa 1000 1979
Sigma Reel Magic Ultra MPEG 359

CREATIVE
PhoneBlaster 33.6 int. S/R FAX E-mail ...232
Sharevision PC3000 w/ video 799
VideoBlaster MP400 full screen/full motion .285

MULTIMEDIA KITS
Diamond 12X CD-ROM Kit 389
0iamond Ultra 8000 8x 249

CREATIVE
Blaster CD 8X 139
Discovery 8X 255
Performance 8X 309

Turtle Beach
Turtle 8each 6X Kit - sound, +50 titles ..209
Turtle 8each 8X Kit - sound, +50 titles ...235

PC SPEAKERS
LabTec 3210 20-watt 79
NEC Audio Tower 49
Panasonic EA8MPC25 45
Sony SRS-D4KPC 30-watt w/sbwf .209

ALTEC LANSING
ACS53 System w/subwoofer 125
ACS300.1 System 165
ACS500 5-Channel Dolby Surround.299

DIGITIZERS
Calcomp Drawing Slate 12x12 16btn 209
Calcomp DrawingBoard III 12x12 w/ 16btn 232
Calcomp Drawing8oard III 12x12 w/ 4btn 237
Calcomp DrawingBoard III 12x12 w/ Pen 245
Calcomp Drawing8oard III 12x18 w/ 16btn 359
Calcomp Drawing8oard III 12x18 w/ 4bin 365
Calcomp Drawing8oard III 18x24 w/ 16btn 1029
Summasketch III 12x12 2btn stylus 245
Summesketch III 18x12 16btn stylus 475

WACOM
Artpad II 4x5 w/ Dabbler 149
Artz II 12x12 Cordless 409
ArtZ 6x8 Cordless 299

SOUND BOARDS

CREATIVE
Sound 8laster 16 Value IDE 89
Sound 8laster 32 IDE PnP 135
Sound Blaster 32 AWE PnP 219

Turtle Beach
Audio Advantage **PCMCIA** 129
Turtle Beach Tropez + ...219

MediaTriX
mediaTrix AudioTrix-Pro 219

Wavjammer 16-bit **PCMCIA** 199
Multimedia Combo SCSI 329

DIGITAL CAMERAS

Kodak digital science
DC20 "Great for the WEB!" 329
DC40 599
DC50 "8est Selling Camera" 899

MODEMS
Boca Express 14.4 w/Fax int. w/software ....
Boca 28.8 V.34 int./ext. 14
Multitech 1932ZDX 19.2 w/fax ext. ....
Multitech MT2834ZPX 28.8 int. ....
Practical PM144MT 14.4 Mini-Tower ext..
Practical V.34 PCMCIA EZPort ....
Simple 14.4 Voice 0ata/FAX Modem ....
Zoom 14.4 w/Fax int./ext. 6

HAYES
Accura 28.8 w/fax int. / ext. V.34 149
Optima 28.8 w/fax int. / ext. w/voice ...230
Optima 28.8 EZJack **PCMCIA** ....

Megahertz
XJ4288 xJack 28.8 **PCMCIA** V.34 ....
XJ3288M 28.8 Cellular w/XJack ....

U.S. Robotics
Sportster 28.8 Winmodem Internal ....
Sportster Voice 33.6 Faxmodem int. ....
Sportster 14.4 w/fax int./ext. 49
Sportster 33.6 V.34 int./ext. 145*
Sportster **PCMCIA 2.1** 28.8 w/fax V.34 ..
Sportster **ISDN 128K** ....
*-Upgradable to USR X2 56Kbps Techn

MIDWEST ORDER DEPARTMENT
800-659-6757
24-HOUR FAX
847-367-8540
International Line
847-367-6519

Office Hours M-F 8am-7pm CST

Special Holiday Sales Hours Sat. 9am-1pm

DHL FedEx
FAST SHIPPING, NO PROBLEM! WE DELIVER WHEN YOU NEED IT.

Easy Payment Methods!
• Leasing Available • Purchase orders accepted from educational institutions, federal & state agencies and approved corporations. • C.O.D's welcome.

Policy Information
• Personal & company checks will delay orders 2-weeks • No surcharge for credit cards • All prices subject to change • Orders outside the USA require payment by wire transfer or American Express • We check for stolen credit cards • All returns for credit, repair or exchange must have a "RA" number issued by our customer service department • Returned merchandise may depend on manufacturer policy* • Returned merchandise must in good condition and shipped to our main warehouse located at: 600 Bunker Court, Vernon Hills, IL 60061

VISIT US ON THE WEB!
http://www.mcworks.com

Meeting your mobile computing needs!

NOTEBOOKS FOR LESS AT MIDWEST!

FREE Genuine Leather Carrying Case with every Hitachi, Olivetti or Sharp notebook! $99 Value
While supplies last

IBM ThinkPad 760ED

P-133MHz, 12.1" Active Color, 28.8Kbps Modem & 2.1GB Hard Drive!

12.1" ACTIVE COLOR

- 16MB RAM, 1MB VRAM
- 6X-speed CD-ROM Drive
- 3.1-9.0-hr. Li-ion Battery
- PC Card Slots, 2 Type II or 1 Type III
- Video Capture & MPEG 2 Playback
- 16-bit Stereo Wavetable Audio, Sound Blaster Support

$5899

TOSHIBA Tecra 730CDT

P-150MHz, 12.1" Active Color & a Built-in 28.8Kbps Data/Fax Modem!

- 16MB EDO RAM, 2GB HDD
- 6X CD-ROM Drive INCLUDED!
- 16-bit Sound Blaster Pro Compatible Sound System w/ .WAV & MIDI
- PC Card Slots, 2 Type II or 1 Type III

HOT!!

$5885

Lease an IBM for as low as $89 a month

HITACHI M Series Notebooks Intel Pentium-133MHz

- Pentium® 133MHz
- 11.8" Active Matrix, SVGA
- 16MB RAM, 1GB HDD
- 6X CD-ROM Drive
- Stereo Speakers, Mic
- 28.8Kbps Fax Modem
- Two Type II or one Type III PC card slot

$4229

olivetti Echo P100C

- Pentium® 100MHz
- 11.3" DSTN SVGA 16.7M Color Display
- 8MB RAM, 1.3GB HDD
- 6X CD-ROM Drive
- 2 Stereo Speakers
- Built-in 16-bit, Sound Blaster Compatible
- 2.3 Hours NiMH Battery Life

$2049

See the Notebook Listings for pricing on Pentium 120, 133MHz and Active Color models available.

MAGITRONIC Pentium 620

- Pentium 133MHz Processing Speed
- 12.1" SVGA Active Color Display
- 16MB EDO RAM
- 2.1Gigabyte Hard Drive
- 6X CD-ROM Drive
- Built-in Speaker & Mic
- 32-Bit PCI Local Bus w/ 1MB Video RAM
- Built-in 16-bit Stereo Audio
- Built-in Trackpad
- PC Card Slots, Type II & Type III
- Windows® 95 and Lotus Smart Suite
- 2-Yr Warranty, 24-hr. Technical Support

FREE CARRYING CASE!!

$3989

SHARP

INTRODUCING THE SHARP WIDENOTE W-100T

- Pentium® 133MHz Processor
- 11.2" TFT Viewable LCD, 1024x600 Resolution
- 16MB RAM, exp. 32MB
- 64-Bit PCI Bus, 2MB
- 1.1GB HDD
- 28.8Kbps Modem
- 16-bit SoundBlaster Compatible, Stereo Sound
- Two Type II or One Type III PC Card Slots
- Lithion-ion Battery
- Infrared Connection Port
- 3 Year Warranty
- **4.6 Pounds, *LIGHTWEIGHT!***

Smarter Notebooks for Sharp Minds

$3299

Happy New Year!

U.S. Robotics

The Intelligent Choice in Data Communications

FREE FAX & INTERNET SOFTWARE!!

5-Year Warranty!

Sportster Winmodem™ Internal 28.8

- Max. throughput 115,200 bps
- High speed data: 28.8 Kbps (Upgradable to 33.6)
- High speed fax: V.17 Group III 14,4000 and 9600 bps Class 1 & Class 2.0 send and receive fax

Mail-in Rebate Oct. 4-Jan. 4 '97

Upgradable to x2 56Kbps!

$115

NEW Upgradable to 56Kbps!

UMAX Vista S12 Scanner

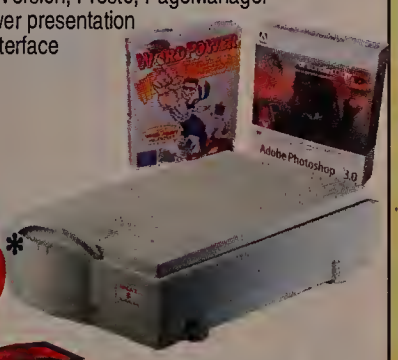
Single-Pass 36-Bit Color Scanning

- 600x1200dpi Optical, 9600dpi max. Resolution
- Adobe Photoshop LE Version, Presto, PageManager OCR, ASAP WordPower presentation software & SCSII II interface

BEST SELLER

Graphics for professionals

$649*



$20.00 MAIL-IN REBATE*
Exp. 1/15/97

POWER PROTECTION

APC AMERICAN POWER CONVERSION

Protect Your Investment!

UPS's Starting at **$99**

$25,000 Lifetime Equipment Protection on All UPS!

Protect ME! APC

BACK-UPS PRO PnP SERIES
APC Introduces the world's ONLY Plug-and-Play UPS with PowerChute Win 95 Management Software!
Back-UPS Pro 280/420 ..... 140/230
Back-UPS Pro 650 280

BACK-UPS SERIES
The World's Best Value in Power Protection!
Back-UPS 280B/400B 99/145
Back-UPS 450/600 ..... 169/237
Back-UPS 900/1250 ..... 339/449

SMART-UPS VS SERIES
Includes PowerChute Power Management & Diagnostic Software for networks!
Smart-UPS 420 VS/650 VS 259/295
Smart-UPS 1000 VS/1400 VS 435/559

SMART-UPS SERIES
Performance Power Management for Advanced Business Networks!
Smart-UPS 450/700 ..... 275/338
Smart-UPS 1400/2200 ..... 594/1029

SURGE SUPPRESSORS
Protect Net Network Cable Protector 23
Personal SurgeArrest Strip 6', 7-outlets 19
Personel SurgeArrest 6', w/RJ11 25
Personal SurgeArrest 6', w/CATV 34

UPS MANAGEMENT SOFTWARE
PowerChute+ for Novell/Unix 69/99
PowerChute+ for Win/Win NT 59/69

YOUR APC HEADQUARTERS!

MEMORY MODULES

MEMORY $6.50 per MB

Call for LOWEST industry pricing!
Call for current price changes.

OVERNIGHT SHIPPING
FedEx FREE

100'S of upgrades available. Call our *MEMORY SPECIALIST* today!

AST			
Ascentia 900N	4MB/8MB	59/92	
Ascentia 950N	8MB/16MB	89/191	
Ascentia J	8MB/16MB	88/210	
COMPAQ			
Contura 400CX	4MB/8MB	69/89	
Contura LTE Elite	4MB/8MB	49/89	
LTE 5000	4MB/8MB	69/131	
Armada 1120, 1120T	8MB/16MB	79/149	
Concerto Series	4MB/8MB	69/139	
HEWLETT PACKARD			
LaserJet 4, DJ1200	1MB	26	
LaserJet 4P, 4+, 4V	4MB	30	
LaserJet 4Si, 4SiMX	4MB/8MB	41/81	
LaserJet 5L	4MB/8MB	49/91	
LaserJet 5SI/5SI MX	16MB	116	
IBM			
ThinkPad 701C	4MB/8MB	42/75	
ThinkPad 755	4MB/8MB	92/160	
ThinkPad 760E, 365X	8MB	80	
ThinkPad 760	8MB/16MB	79/142	
NEC			
Versa S	4MB/8MB	35/76	
Versa 600H, 6030H	8MB/16MB	CALL	
TOSHIBA			
T2100	8MB/16MB	69/121	
T400/410	8MB/16MB	90/159	
T610	8MB/16MB	90/159	
Tecra 500CS	16MB/32MB	149/379	
Tecra T700	8MB/16MB	97/266	
Tecra T720	16MB/32MB	159/319	

SIMM Modules - IN STOCK -

Call this number to speak with a dedicated memory specialist.

Call Our *Memory Specialist* Today!
800-770-4348

NETGEAR EN308 8-Port Ethernet Hub

- At-A Glance LED Indicators
- Switchable BNC/AUI Port
- MDI port for network expansion
- 8 10Base-T Ports

EASY INSTALLATION

$139

Megahertz by U.S. Robotics

High Standard, Affordable 28.8 Modem Price—

Megahertz 28.8kbps PC Card Fax Modems deliver the performance and compatibility of V.34 with the convenience of the built-in XJACK connector.

$179

CALL FOR A FREE CATALOG!

Please refer to this code when ordering. **KEY CODE CW01/7**

PC WORLD JAN. '97

NATIONAL DIRECT ORDER LINE

800-65-WORKS

Where Corporate America Shops!

800-659-6757

Circle 139 on reader service card

www.megahaus.com

MEGAHAUS

1-800-786-1154

8:00AM - 8:00PM Mon-Fri 9:00AM - 3:00PM Sat CST

The Drive Authority since 1987

CD RECORDERS - BUILD YOUR OWN KIT!

It's as easy as 1,2,3,4,5!

(Please note software, controller, and media prices listed in this box are good only with the purchase of a CD Recorder drive. Please call for individual pricing.)

1 - CHOOSE YOUR DRIVE

2X4 Ricoh, 2MB Buffer (RO1420C2M)	$379
2X4 JVC (LVC2010)	$429
2X4 Sony (CDU924S)	$479
4X4 Teac, tray loading (CDR50S)	$699
4X4 Yamaha (YCDR100)	$779

2 - CHOOSE INTERNAL OR EXTERNAL

If internal - go on to step 3. If external, add an external case (EXTCDCASE) $100, and the proper cable. We will even install the drive in the case for you.

3 - CHOOSE YOUR SOFTWARE

Corel CD Creator Pro for PC	$40
-Supports Windows 3.1, 95, NT (CORELCDPRO)	
Incat Easy-CD	$60
-Supports Windows 3.1, 95, NT (INCATPC)	
Astarte Toast CD-ROM Pro	$85
-Supports Macintosh (TOAST)	
Elektroson Gear Multimedia for PC	$69
-Supports OS/2, Windows 3.1, 95, NT	
-Also supports Macintosh (GEAR)	
Creative Digital Research CDR HYCD for PC	$359
-Supports Windows 3.1, 95, NT	
-Creates hybrid CDs for PC/Mac/Unix (CDRHYWIN)	
Creative Digital Research CDR HYCD for Unix	$1299
-For Unix workstations	
-Creates hybrid CDs for PC/Mac/Unix (CDRHYUNIX)	

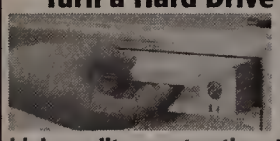
4 - CHOOSE YOUR SCSI CONTROLLER

16Bit	ISA	PIO	Adaptec	(A1505CDKIT)	$47
16Bit	ISA	Bus Master	Advansys	(ABP5140)	$95
32Bit	PCI	Bus Master	Advansys	(ABP940)	$125
32Bit	PCI	PIO	Adaptec	(A2920KIT)	$139
32Bit	PCI	Bus Master	Adaptec	(A2930KIT)	$179

5 - CHOOSE YOUR BLANK MEDIA

5 Pack (CDR74-5)	$37
50 Pack (CDR74-50)	$349
20 Pack (CDR74-20)	$145
100 Pack (CDR74-100)	$689
300 Pack CDR Labels, template software, and applicator	$59

Turn a Hard Drive Into a Removable



Converts any 3 1/2" hard drive into a removable drive. Great for transportability, data interchange, or security needs. Extremely high quality construction. Metal cartridge and frame, cooling fan. Unit has SCSI ID select on the cartridge. Qty discounts available.

	System	Extra Cartridge	Extra Frame
IDE	**$79**	**$39**	**$49**
SCSI	**$85**	**$40**	**$54**
WIDE SCSI	**$129**	**$64**	**$75**

Weather resistant case to store and transport cartridge $55

• OPTICALS •

All Optical Drive prices below include **1 FREE cartridge**.

230MB	Fujitsu IDE	$339
230MB	Smart Storage Solutions SCSI	$339
640MB	Smart Storage Solutions SCSI	$539
640MB	Fujitsu (230MB backwards compatible)	$555
650MB	Toray 4xCD and 640MB Optical comb.	$499
	Call about Rebate (expires 12-31-96)	
2.6Gig	Smart Storage Solutions	$1649
2.6Gig	Maxoptix	$1599
2.6Gig	Hewlett Packard	$2199
52Gig	Maxoptix (does not include free disks)	$4549

• REMOVABLES •

540MB MCD

Compatible w/ SyQuest 270MB media. SCSI Int/Ext $289/$299

SyQuest

230MB Flyer compatible with EZ135MB disks
External SCSI or parallel with 1 free disk $299

200MB compatible with 44 and 88MB disks
Internal SCSI/External SCSI $269/$339

1.3Gig 1 free disk Internal SCSI/External SCSI $399/$499

100MB Zip

External SCSI with 1 disk/Ext Parallel with 1 disk $189/$189

1 GB Jaz

Internal SCSI with 1 disk/Ext SCSI with 1 disk $379/$469

• CD RECORDERS •

Order from our Build Your Own Kit feature on the previous page, or choose one of these COMPLETE KITS which includes drive, controller, software, and 1 recordable CD disk. Smart Storage Solutions kit includes 5 FREE recordable CD disks!

Smart Storage Solutions	2X Write 4X Read	$499
HP	2X Write 4X Read	$569
Smart & Friendly	2X Write 4X Read	$529
Teac	4X Write 4X Read	$829
Smart Storage Solutions	4X Write 4X Read	$889
Yamaha	4X Write 4X Read	$819

• CD ROM DRIVES •

Brand	Spin	Model	Speed	Int	Ext
SCSI					
NEC	4X	CDR222	200ms	$99	$189
Plextor	6X	PX63CS	145ms	$269	$359
Philips	8X	PC80S	195ms	$205	$295
NEC	8X	CDR1410	145ms	$205	$295
Plextor	8X	PX83CS	115ms	$299	$389
Pioneer	10X	DRU10XSCSI	140ms	$225	$315
Plextor	12X	PX12TS	105ms	$319	$409
Plextor	12X	PX12CS	105ms	$349	$439
ATAPI IDE				**Int**	**Int kit**
NEC	8X	CDR1400	140ms	$110	$140
Mitsumi	8X	CRMCFX800	150ms	$110	$140
Acer	10X	AC910A	150ms	$125	$155
Pioneer	10X	DRA10X	140ms	$135	$165
Lite On	12X	LTN126A	155ms	$129	$159
Acer	12X	AC612A	125ms	$149	$179
Mitsumi	12X	CRMCFX12X	150ms	$175	$205
IDE CD ROM CHANGER					
NEC	4X	CDR4X4	4Disk 250ms	$99	
SCSI CD ROM CHANGERS					
Nakamichi	8X	MJ48S	4Disk 150ms	$399	
Pioneer	4.4X	DRM-624X	6 Disk 190ms	$379	

• TAPE DRIVES •

QIC MINICARTRIDGE (SAVE $10 with hard drive purchase)

Includes DOS/Win backup software and 1 free tape.

800MB	Seagate	TST800R	$119
1.7Gig	Seagate	TSM1700	$199
3.2Gig	Seagate	TST3200RFT	$215

PRINTER PORT MINICARTRIDGE

Includes DOS/Win backup software and 1 free tape.

800MB	Seagate	TST800RPT	$235

IDE or SCSI TRAVAN (SAVE $10 with hard drive purchase)

Includes DOS/Win backup software and 1 free tape.

4-8GB	Seagate	TST8000(A)	$379

SCSI 4mm DAT

2GB	Hewlett Packard	C1534	$609
2-4GB	Seagate	C4324RP	$679
2-4GB	Hewlett Packard	C1536	$699
4-8GB	Sony	SDT5000	$809
4-8GB	Seagate	C4326NP (DDS2)	$859
4-8GB	Hewlett Packard	C1533A	$929
4-8GB	**Sony**	**SDT7000**	**$909**

TURBO SPEED 46MB/sec uncompressed or 90MB/sec with onboard compression!

24-48GB	HP	External 6 tape loader C1553AX	$2299
32-64GB	Sony	TSL7000 8 tape autoloader	$2199
48-96GB	Seagate	C4586NP 12 tape autoloader	$2399

SCSI 8mm DAT

3.5-7GB	ExaByte	EXB8205XL	$1269
7-14GB	ExaByte	EXB8505XL	$1889
7-14GB	ExaByte	EXB8700LT	$1089
20-40GB	ExaByte	EXB8900	$5499
70-140GB	ExaByte	EXB10H 10 tape autoloader	$5439

SCSI DLT 20-40GB Quantum DLT4000 $4699

BACKUP SOFTWARE (SAVE $10 with hard drive purchase)

NovaStor's NovaBack CD contains software for DOS, Win 3.1, Win 95, OS/2, Warp, and Macintosh $79

NovaStor's NovaDisk CD contains software to backup to disk drives and removables $79

Seagate Arcada for Windows NT (call for netware version) workstation/single server/enterprise $239/499/869

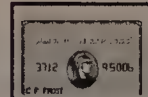
TAPEDISK, allows DAT drive to be used as hard drive under DOS/Win 3.1, Win 95 $189

• IDE HARD DRIVES •

IDE	Speed	RPM	Brand	Model	Wty	Price
540MB	14ms	3600	Seagate	ST3541A	3	$139
631MB	14ms	3600	Seagate	ST3630A	3	$145
850MB	10ms	4500	Western Digital	AC2850	3	$165
850MB	14ms	3600	Seagate	ST3851A	3	$155
1200MB	10ms	5400	Fujitsu	M1636T	3	$195
1275MB	12ms	4500	Seagate	ST31276A	3	$189
1280MB	11ms	4500	Quantum	TM31280A	3	$195
1281MB	11ms	5200	Western Digital	AC21200A	3	$199
1330MB	12ms	4480	Maxtor	M71336A	3	$195
1623MB	14ms	3600	Seagate	ST31621A	3	$212
1624MB	10ms	5200	Western Digital	AC21600	3	$219
1670MB	11ms	4480	Maxtor	M71670A	3	$215
1700MB	10ms	5400	Fujitsu	M1623T	3	$215
1700MB	12ms	4500	Seagate	ST31720A	3	$215
1700MB	11ms	4500	Quantum	SR31700A	3	$219
2004MB	11ms	4480	Maxtor	M72004A	3	$255
2100MB	11ms	5200	Western Digital	AC22100	3	$265
2100MB	9ms	5400	Fujitsu	M1624T	3	$249
2132MB	12.5ms	4500	Seagate	ST32132A	3	$270
2168MB	10.5ms	4500	Quantum	TM32160A	3	$259
2500MB	9ms	5400	Fujitsu	M1638T	3	$259
2550MB	15ms	3600	Quantum	BF2500A	3	$242
2559MB	11ms	5200	Western Digital	AC32500	3	$275
2560MB	11ms	5400	Seagate	ST5250A	3	$292
2700MB	12ms	4480	Maxtor	M72700A	3	$305
3166MB	12ms	5200	Western Digital	AC33100	3	$325
3254MB	10.5ms	4500	Quantum	TM33200A	3	$325
3500MB	12ms	4480	Maxtor	M83500A	3	$419
3840MB	10.5ms	4500	Quantum	TM33840A	3	$389

• SCSI HARD DRIVES •

5SCSI	Speed	RPM	Brand	Model	Wty	Int	Ext
1050MB	9ms	5400	Seagate	ST31055N	3	$349	$409
1280MB	12ms	4500	Quantum	TM31280S	3	$279	$339
2110MB	10.5ms	4500	Quantum	TM32110S	3	$375	$435
2147MB	9ms	5400	Seagate	ST32155N	5	$485	$545
2147M8	8ms	7200	Seagate	ST32550N	5	$729	$789
2150MB	9ms	5400	Seagate	ST32155N	5	$479	$539
2150M8	8ms	7200	Seagate	ST32171N	5	$739	$799
3254M8	10.5ms	4500	Quantum	TM33200S	3	$449	$509
4290MB	8ms	7200	Seagate	ST15230N	5	$885	$945
4350MB	8ms	7200	Seagate	ST34371N	5	$1145	$1205
4400MB	8ms	7200	Fujitsu	M2954S	5	$819	$879
4550MB	8ms	7200	Quantum	XP34550S	5	$999	$1059
9080MB	11ms	5400	Seagate	ST410800N	5	$1779	$1879
9100M8	9ms	7200	Seagate	ST19171N	5	$2085	$2145
9100MB	8ms	7200	Quantum	XP3900S	5	$1599	$1659
WIDE SCSI							
1050MB	9ms	5400	Seagate	ST31055W	5	$379	$509
2050MB	8.5ms	7200	Micropolis	MC4221	5	$545	$599
2050MB	8.5ms	7200	Micropolis	MC4221AV	5	$600	$660
2147M8	9ms	5400	Micropolis	MC4421	5	$379	$439
2147MB	9ms	5400	Micropolis	MC4421AV	5	$459	$519
2150MB	9ms	5400	Seagate	ST32155W	5	$529	$659
2150MB	8ms	7200	Seagate	ST32171W	5	$779	$909
4294MB	8ms	7200	Micropolis	MC3243	5	$829	$889
4294MB	8ms	7200	Micropolis	MC3243AV	5	$829	$945
4294M8	8ms	7200	Micropolis	MC3243W	5	$929	$1059
4294MB	8ms	7200	Micropolis	MC3243WD	5	$899	$1029
4294MB	8ms	7200	Micropolis	MC3243WAV	5	$999	$1139
4350MB	8ms	7200	Seagate	ST34371W	5	$1189	$1379
4550MB	8ms	7200	Quantum	XP34550W	5	$999	$1059
4550MB	7.9ms	7200	Micropolis	MC4345	5	$999	$1059
4550MB	7.9ms	7200	Micropolis	MC4345W	5	$1020	$1130
9091MB	8.5ms	7200	Micropolis	MC3391	5	$1799	$1859
9091MB	8.5ms	7200	Micropolis	MC3391W	5	$1709	$1849
9100M8	11ms	5400	Seagate	ST410800W	5	$2029	$2219
9100M8	9ms	7200	Seagate	ST19171W	5	$2149	$2279
9100MB	12ms	5400	Micropolis	MC1991	5	$1599	$1699
9100M8	12ms	5400	Micropolis	MC1991AV	5	$1699	$1799
9100MB	12ms	5400	Micropolis	MC1991W	5	$1699	$1889
9100M8	12ms	5400	Micropolis	MC1991WAV	5	$1839	$2029
9100MB	8ms	7200	Quantum	XP3900W	5	$1599	$1659



MegaHaus

2201 Pine Drive, Dickinson, Texas 77539

(281)534-3919 FAX (281)534-6580

Prices & specifications subject to change without notice. Shipping charges are nonrefundable. Returns must be in new condition and in original packaging. Defaced items may not be returnable. No refunds on software or special orders (items not listed in ed.) All refunds subject to 15% restocking fee. All trademarks are registered trademarks of their respective companies. Personal checks held for clearance. We reserve the right to refuse any sale for any reason. Bundle price good only if sold at ad price. ©1996 MegeHaus Inc.

1/97 PC World

Circle 147 on reader service card

MIDWEST MEMORY WORKS

YOUR MEMORY CENTER!

THE *LOWEST* PRICING IN THE INDUSTRY

CALL TODAY FOR OUR FREE CATALOG! 100's of Memory Modules Available.

Computer Shopper Best Buy of 1995

Where Corporate America Shops!

FEATURING

SOUTHLAND MICRO SYSTEMS

Quality • Strength • Speed

SIMM MEMORY

FREE FedEX Shipping!

1MB X 32 - 60NS SIMMS 37
1MB X 32 - 70NS SIMMS 36
1MB X 32 - 60NS EDO SIMMS 39
1MB X 32 - 70NS EDO SIMMS 38
2MB X 32 - 60NS SIMMS 68
2MB X 32 - 70NS SIMMS 67
2MB X 32 - 60NS EDO SIMMS 70
2MB X 32 - 70NS EDO SIMMS 69
4MB X 32 - 60NS SIMMS 126
4MB X 32 - 70NS SIMMS 125
4MB X 32 - 60NS EDO SIMMS 128
4MB X 32 - 70NS EDO SIMMS 127
8MB X 32 - 60NS SIMMS 228
8MB X 32 - 70NS SIMMS 227
8MB X 32 - 60NS EDO SIMMS 230
8MB X 32 - 70NS EDO SIMMS 229

1MB X 36 - 60NS SIMMS 44
1MB X 36 - 70NS SIMMS 43
2MB X 36 - 60NS SIMMS 69
2MB X 36 - 70NS SIMMS 68
4MB X 36 - 60NS SIMMS 139
4MB X 36 - 70NS SIMMS 138
8MB X 36 - 60NS SIMMS 239
8MB X 36 - 70NS SIMMS 238

1MB X 9 - 60NS SIMMS 26
1MB X 9 - 70NS SIMMS 25
4MB X 9 - 60NS SIMMS 39
4MB X 9 - 70NS SIMMS 38

EXPANSION BOARDS

FREE FedEX Shipping!

Canon

LBP-4SX 2MB 149
LBP-8II 1-4MB ....CALL
LBP-8II 2-4MB ....CALL

OKIDATA

OL400E, 410E 1-4MB 88
OL400E, 410E 2-4MB 144
OL400E, 410E 4MB 284
OL410, 810 1-4MB 97
OL410, 810 2-4MB 159
OL800, 820 1-4MB 106
OL800, 820 2-4MB 159
OL800, 820 3-4MB 249

Panasonic

KX-4410, 4430 1-4MB 105
KX-4410, 4430 2-4MB 91
KX-4410, 4430 3-4MB 219
KX-4420, 4450i 1-4MB 67
KX-4420, 4450i 2-4MB 129

DESKTOP MEMORY

FREE FedEX Shipping!

AST COMPUTER

Bravo LC Series, Mini-Towers, 4MB 35
Bravo LC Series, Mini-Towers, 8MB 69
Bravo LC Series, Mini-Towers, 16MB 143
Premmia LX Series, Desktops, 8MB 69
Premmia LX Series, Desktops, 16MB 140
Premmia LX Series, Desktops, 32MB 286

COMPAQ

Deskpro/Prolinea P75/90, 8MB 69
Deskpro/Prolinea P75/90, 16MB 149
Deskpro/Prolinea P75/90, 32MB 279
Deskpro XL Series, Desktops, 8MB 88
Deskpro XL Series, Desktops, 16MB 189
Deskpro XL Series, Desktops, 32MB 332
Deskpro XL6/50, Desktops, 16MB 279
Deskpro XL6/50, Desktops, 32MB 362
Proliant 1500/1500R/133 Servers, 16MB 189
Proliant 1500/1500R/133 Servers, 32MB 332
Presario Series, Desktops, 8MB 69
Presario Series, Desktops, 16MB 143
Presario Series, Desktops, 32MB 279
Prosignia Series, Servers, 8MB 88
Prosignia Series, Servers, 16MB 189
Prosignia Series, Servers, 32MB 319

HEWLETT PACKARD

Vectra VL3 Series, Desktops, 8MB 70
Vectra VL3 Series, Desktops, 16MB 143
Vectra VL3 Series, Desktops, 32MB 279
Vectra VL4 Series, Desktops, 8MB 70
Vectra VL4 Series, Desktops, 16MB 143
Vectra VL4 Series, Desktops, 32MB 319
Vectra XU/VT 6150, MT, 16MB 280
Vectra XU/VT 6150, MT, 32MB 359
Vectra Net server LC, Servers, 8MB 94
Vectra Net server LC, Servers, 16MB 189
Vectra Net server LC, Servers, 32MB 312

IBM

Aptiva M40/M41 Desktops, 8MB 70
Aptiva M40/M41 Desktops, 16MB 143
Aptiva M40/M41 Desktops, 32MB 279
PS/1 Value Point, Desktops, 4MB 43
PS/1 Value Point, Desktops, 16MB 167
PC 300/700, Desktops/MT, 8MB 89
PC 300/700, Desktops/MT, 16MB 189
PC 300/700, Desktops/MT, 32MB 332
PC Server 310 Series, Servers, 8MB 94
PC Server 310 Series, Servers, 16MB 166
PC Server 310 Series, Servers, 32MB 319

NEC

Powermate P120, Desktops, 8MB 70
Powermate P120, Desktops, 16MB 143
Powermate P120, Desktops, 32MB 279

NOTEBOOK MEMORY

FREE FedEX Shipping!

AST

Ascentia J Series, 8MB/16MB/32MB ..92/179/345
Ascentia P Series, 8MB 104
Ascentia 800N Series, 4MB / 8MB 89/79
Ascentia 800N Series, 16MB 159
Ascentia 900N Series, 4MB / 8MB 69/85
Ascentia 900N Series, 16MB 159
Ascentia 950 Series, 8MB/16MB 89/179

COMPAQ

Armada 1120, 1120T, 8MB / 16MB 92/162
Armada 4100 Series, 8MB / 16MB 104/169
Armada 4100 Series, 32MB 364
LTE 5000 Series, 8MB / 16MB 92/169
LTE 5000 Series, 32 MB 292
LTE Elite Series, 4MB / 8MB 59/84
Contura 400CX Series, 4MB / 8MB 49/69
Contura 400CX Series, 16MB 154
Contura 486 Series, 4MB/8MB /16MB ..54/94/187
Concerto Series, 8MB/16MB 92/189

HEWLETT PACKARD

HP Omnibook 300, 425, 433, 4MB 119
HP Omnibook 530, 600, 4MB/8MB 59/79
HP Omnibook 4000 Series, 4MB 84
HP Omnibook 4000 Series, 16MB 159

IBM

Thinkpad 365C Series, 4MB /16MB 36/143
Thinkpad 701C Series, 4MB /8MB 49/69
Thinkpad 701C Series, 16MB 135
Thinkpad 750 Series, 16MB / 32MB 179/339
Thinkpad 755 Series, 8MB /16MB 119/179
Thinkpad 755 Series, 32MB 339
Thinkpad 760 Series, 8MB /16MB 85/149
ThinkPad 760E, 365X, 560 8MB/16MB 91/159
ThinkPad 760E, 365X, 560 32MB 549

NEC

Versa S Series, 4MB / 8MB / 16MB 35/76/146
Versa 600H, 6030H, X, 8MB/16MB 99/175

TEXAS INSTRUMENTS

Extensa Series, 8MB / 16MB / 32MB..85/149/291

TOSHIBA

T2100 Series, 8MB /16MB 85/139
T400/410 Series, 8MB /16MB 97/169
T400/410 Series, 32MB 339
Satellite Pro 420CDS, 420CDT, 8MB 97
Satellite Pro 420CDS, 420CDT, 16MB 169
Satellite Pro 420CDS, 420CDT, 32MB 339
T610 Series, 8MB/16MB 97/169
T610 Series, 32MB 349
Portege 650CT, 8MB/16MB 98/179
Portege 650CT, 32MB/64MB 549/1149
Tecra T700 Series, 8MB/16MB 92/259
Tecra T700 Series, 32MB 679
Tecra T720 Series, 16MB/32MB 169/339
Tecra T730 Series, 8/16/32MB 98/194/349
Tecra 500CS, 500CDT, 16MB / 32MB 169/364
Tecra 500CS, 500CDT, 48MB/128MB ...599/1149

ZENITH

Z-Noteflex Series, 4MB / 8MB/16MB 36/76/149

PRINTER MEMORY

FREE FedEX Shipping!

Canon

LBP-860 Laser Printer, 4MB 29
LBP-860 Laser Printer, 16MB 116
LBP-860 Laser Printer, 32MB 236

COMPAQ

Pagemark 15, 20 LED Printer 4MB 80
Pagemark 15, 20 LED Printer 8MB 142
Pagemark 15, 20 LED Printer 16MB 294

HEWLETT PACKARD

LaserJet 4, 4SI, DJ1200, 1MB 29
LaserJet 4, 4SI, DJ1200, 2MB 39
LaserJet 4, DJ1200, DJ600, 4MB 59
LaserJet 4, DJ1200, DJ600, 8MB 98
LaserJet 4, DJ1200, DJ600, 16MB 165
LaserJet 4, DJ1200, DJ600, 32MB 312
LaserJet 4P, 4+, 4V, DJ650C, 4MB 35
LaserJet 4P, 4+, 4V, DJ650C, 8MB 70
LaserJet 4SI, 4SIMX, 4MB 59
LaserJet 4SI, 4SIMX, 8MB 59
LaserJet 5L Laser Printer 4MB 59
LaserJet 5L Laser Printer 8MB 97
LaserJet 5SI/5SIMX 2MB 29
LaserJet 5SI/5SIMX 4MB 39
LaserJet 5SI/5SIMX 8MB 70
LaserJet 5SI/5SIMX 16MB 149

LEXMARK

IBM Lexmark 4029/4037/4047 2MB 39
IBM Lexmark 4029/4037/4047 4MB 49
IBM Lexmark 4039/4079 4MB 39
IBM Lexmark 4039/4079 8MB 70

OKIDATA

OL400 Laser Printer 2MB 144
OL800, 820 Laser Printers 4MB 243

Panasonic

KX-4410, 4430 Dot Matrix Printers 4MB 215
KX-4440, 5410 Dot Matrix Printers 4MB 149
KX-P4455 Dot Matrix Printers 2MB 187

MEMORY

AS LOW AS $6.99 Per Megabyte

Price per MB based on 8MBx32 70NS 32MB SIMM

SOUTHLAND MICRO SYSTEMS offers the following benefits:

- *Lifetime Warranty*
- Highly Competitive Pricing
- *Modules Are 100% Tested*
- Quality Control
- Built To Original Equipment Manufacturer (OEM) Specifications

Ask about the Midwest Memory Works FREQUENT BUYER PROGRAM!!!

With every purchase of memory earn valuable points that can be redeemed towards computer systems, televisions, stereo systems, and more. Call for details TODAY!

OVERNIGHT SHIPPING

Please refer to this code when ordering. KEY CODE MD01/7

MIDWEST MEMORY WORKS
Div of Midwest Computer Works
600 Bunker Court
Vernon Hills, IL 60061

✔ Overnight Shipping
✔ COD's Welcome
✔ Technical Support
✔ P.O.'s Accepted
Restrictions may apply.

VISIT US ON THE WEB! http://www.mcworks.com

800-770-4348

TOLL-FREE CST 8AM-7PM

FAX 847-367-8540

NO SURCHARGES!!

Policy Information

• Checks will delay orders 2-weeks • All prices subject to change • International orders require payment by wire transfer or AMEX • All returns for credit, repair or exchange must have a RA number issued by our customer service department • All returned merchandise must be in good condition and shipped to our main warehouse located at: 600 Bunker Court, Vernon Hills, IL 60061

PC World Jan. '97

Circle 169 on reader service card

PC WORLD MARKETPLACE

SHOWCASE • TECH TOOLS

KEEP YOUR PCs UP AND RUNNING WITH THE 100% ACCURATE FIX

Micro-Scope is a universal PC diagnostic that runs a proprietary O/S which eliminates DOS limitations and inaccuracies. Ver. 6.15 adds 25 enhancements and includes: IDE low-level format, accurate IRQ conflict display, cache memory test, 64 meg video memory test, data recovery capabilities, virus capabilities and super fast hard drive testing.

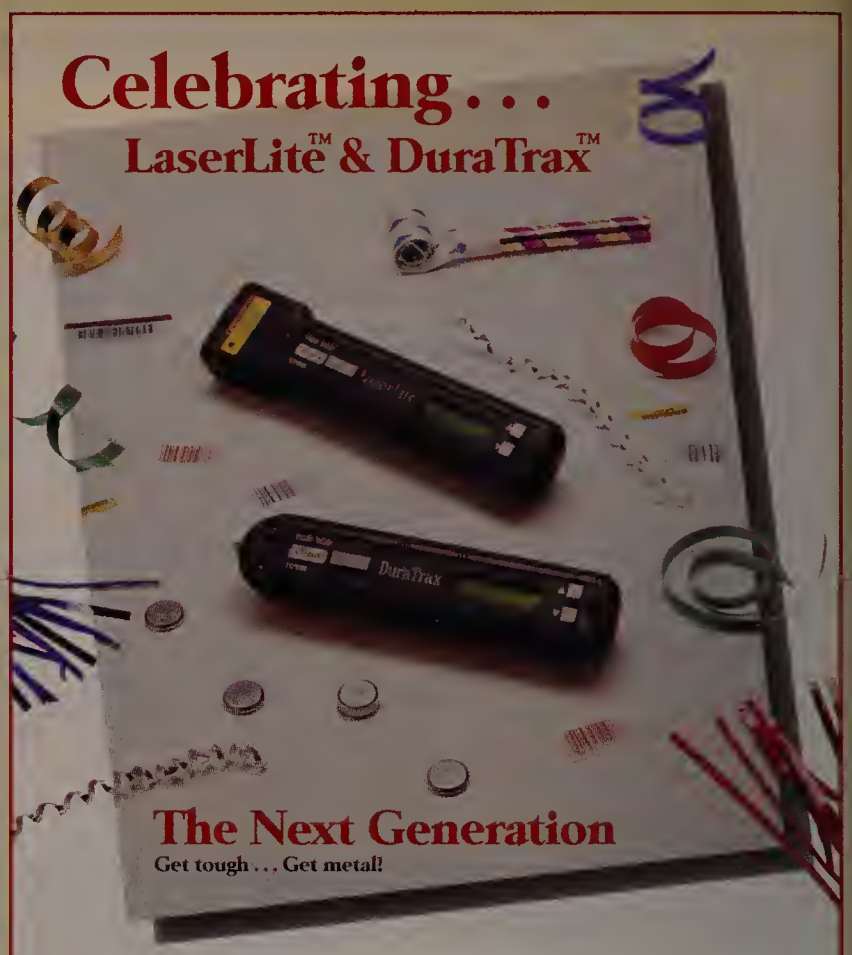
Post-Probe is a universal P.O.S.T. reader card for the non-bootable PC. Post-Probe includes: MCA adapter, tri-state logic probe, 13 LED pre-post test, 7 segment post code display, and a manual with a full explanation of the manufacturer post codes down to the device or chip failure.

Micro 2000

1100 E. Broadway #301
Glendale, CA 91205
TEL: (800) 864-8008
FAX: (818) 547-0397

CIRCLE 457 ON READER SERVICE CARD

Celebrating . . . LaserLite™ & DuraTrax™



The Next Generation
Get tough . . . Get metal!

Join the party as we celebrate two hot new products!
LaserLite—the smallest portable laser bar code reader on the market!
And DuraTrax—the first portable reader to fully integrate Touch Memory® and bar code technology.
Call for your free information kit!

Videx

1105 N.E. Circle Blvd., Corvallis, OR 97330
541-758-0521 • Fax 541-752-5285 • http://www.videx.com GCO731

CIRCLE 480 ON READER SERVICE CARD

COMPUTER CHECKS

BUY DESIGNER DIRECT FOR LOWEST PRICES!

Laser/Inkjet

Continuous Checks and Check Savers Also Available.

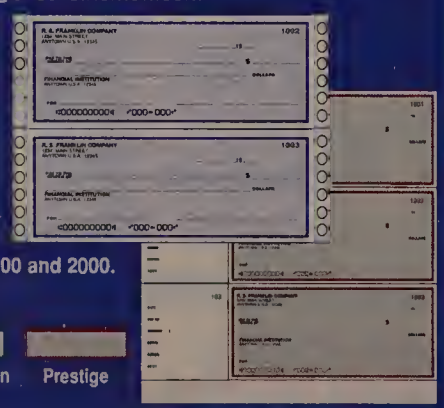
As Low as $29.95

CALL: 1-800-239-4087

FAX ORDERS: 1-800-774-1118
(PLEASE CALL FOR A FAX ORDER FORM)
MC, VISA & AMERICAN EXPRESS ACCEPTED

Internet: http://www.hotnew.com/checks/
E-Mail: info@checks.hotnew.com

- ✔ QUICKEN
- ✔ SIMPLY MONEY
- ✔ MICROSOFT MONEY
- ✔ MANY MORE



Laser and Continuous Feed Checks available in:
- Business Size
- Business Size with Voucher
- Wallet Size

Available in Quantities of 250, 500, 1000 and 2000.
Choose From 4 Stylish Colors!

Classic Blue · Tan · Classic Green · Prestige

Designer CHECKS
P.O. Box 13387 • Birmingham • AL 35202

PO8P04D6 • P.C. WORLD

CIRCLE 474 ON READER SERVICE CARD

New Product Introductory Offer

"With NetReach on our server, the company's idle PCs became a valuable asset"

Create Network Screen Savers

NetReach™ motivates and communicates with fresh and exciting network screen savers

- Promote Corporate Culture
- Improve Quality Consciousness
- Energize Sales Promotions
- Build HR Issues Awareness
- Reinforce Training

For FREE information call: www.softreach.com
SoftReach™ (800) 331-1030

CIRCLE 512 ON READER SERVICE CARD

Computer headset communications

Now there is a lightweight and private alternative to PC microphones and speakers. Plantronics CAT-132 headset works with your sound card for computer telephony integration (CTI), voice recognition, personal conferencing, and internet telephony applications. It is extremely lightweight and can be put on and taken off in seconds.

Only $69.95

For more info visit:
www.aherncorp.com

Ahern Communications Corporation
1-800-451-5071
VISA, MASTERCARD & AMEX

PLANTRONICS
World Leader in Communication Headsets

CIRCLE 484 ON READER SERVICE CARD

Lose 500 pounds in 10 minutes

with a Rose keyboard monitor switch

Streamline your computer room by reducing excess equipment. Access up to 256 CPU's from a single keyboard, monitor, and mouse. ServeView is our best-selling switch, has every feature you can imagine, and installs in minutes. Compare price, features, performance, quality, and support and you'll find Rose can't be beat.

Call today for free catalog

- Print servers
- Data switches
- Keyboard/video control

800-333-9343

P.O. Box 742571 ◆ Houston, Texas 77274
TEL 713/933-7673 ◆ FAX 713/933-0044

Call us to discuss your application or to receive your free information kit.

ROSE ELECTRONICS

CIRCLE 414 ON READER SERVICE CARD

Control PC, Macintosh, and Sun Computers from 1 Console!

- Supports any mixture of PC/Macintosh computers and Sun workstations - up to 4 in all
- Convenient desktop size
- Any platform's peripherals work with any type of computer in the system
- Full multimedia capabilities; keyboard, mouse, video, microphone, speakers, and serial support available
- Multiple users can access different computers simultaneously

AUTOBOOT COMMANDER 1xP™

PC is a registered trademark of International Business Machines Corporation. Macintosh is a registered trademark of Apple Computer, Inc. Sun is a trademark of Sun Microsystems. The Inc. 500 logo is a registered trademark of Goldhirsch Group. Cybex, Commander, AutoBoot, and 1xP are trademarks of Cybex Computer Products Corporation.

Cybex Computer Products Corporation
4912 Research Drive Huntsville AL 35805 USA
1-800-932-9239 (205) 430-4030 fax
http://www.cybex.com

An Inc. 500 Company

Come visit our booth at: Comnet Washington, D.C. February 4-6 Booth #1612

CYBEX™ COMPUTER PRODUCTS CORPORATION

CIRCLE 516 ON READER SERVICE CARD

BECOME A CNE ...FAST!

THE FIRST CNE COMPUTER BASED TRAINING PROGRAM IS HERE...

The first *100%* Computer Based Training (CBT) program to fully prepare you for Novell's CNE exams. Its innovative design provides fast, effective and convenient training to anyone wishing to become a Certified NetWare Engineer, even when hampered by a busy schedule. Our CNE CBT allows you to learn and practice *everything* you'll need for full NetWare certification.

- All on one CD
- Interactive NetWare simulation for hands-on exercises
- Study at your own pace
- Hundreds of practice questions
- Priced below competitive products
- Everything you need to prepare for Novell's tests!

Added Bonus! The AllMicro CNE Self-Study Course comes with the required Micro House Technical Library™.

NOTE: As of 6/30/96 current CNE's will lose their certification unless they pass Novell's new 3.1x-4.1 update test. We have the course! ***CALL TODAY!!***

DON'T PUT YOUR CAREER ON HOLD ANY LONGER! GET THE ALLMICRO CNE SELF-STUDY COURSE AND GET CERTIFIED...FAST!

COURSE MODULES INCLUDE:

- Administration v3.1x
- Advanced Administration v3.1x
- 3.1x Installation & Configuration (#802)
- Service & Support for NetWare (#801)
- TCP/IPTransport for NetWare
- Networking Technologies
- NetWare 3.1x to 4.1 Update.

**NetWare 4.1 course also available*

For more information about our limited time discount pricing CALL:

1-800-653-4933

INTERNATIONAL: (813) 539-7283
FAX (813) 531-0200 PC

ForeFront/AllMicro, Inc.
18820 U.S. HWY 19N, #215, CLEARWATER, FL 34624

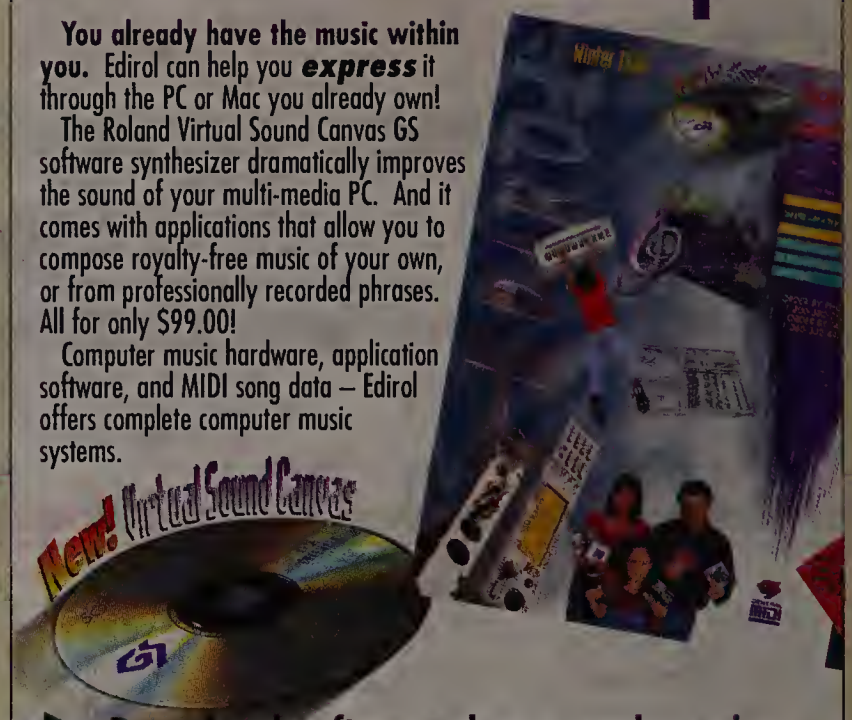
CIRCLE 477 ON READER SERVICE CARD

Add COLORFUL Music To Your Desktop

You already have the music within you. Edirol can help you ***express*** it through the PC or Mac you already own!

The Roland Virtual Sound Canvas GS software synthesizer dramatically improves the sound of your multi-media PC. And it comes with applications that allow you to compose royalty-free music of your own, or from professionally recorded phrases. All for only $99.00!

Computer music hardware, application software, and MIDI song data – Edirol offers complete computer music systems.



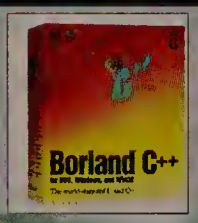
- **Download software demos and preview our catalog at http://www.edirol.com**
- **Call 1-800-380-2580 to request your free Edirol computer music buyer's guide**

EDIROL
Member of the Roland Group

808 Harrison Ave.
P.O. Box 4919
Blaine, WA 98231-4919

CIRCLE 489 ON READER SERVICE CARD

Student - Teacher & School Discounts!



Borland C++ 5.0 $149

WordPerfect 7.0 Suite $99

Fractal Painter 4.0 $219

LATEST VERSIONS & FULL PACKAGES

4th Dimension 3.5	$449	FRACTAL DESIGN POSER 2.0	$95	Multimedia Toolbook 4.0	$479
Agfa StudioStar	$969	FastTrack Schedule 4.0	$129	OKIJET 2010 FULL-COLOR	$299
ARCHICAD 5.0 Subscription	$199	Final Draft 4.0	$125	ORGANIZER 97	$59
ASTOUND 4.0	$99	Fontographer 4.1	$149	OmniPage PRO 7.0	$349
Animator Studio 1.1	$169	Form Z 2.8	CALL	QEMM 8.0	$49
Authorware Pro 3.5.1	$699	FreeHand 7.0	$169	QuickSite PRO	$179
Autocad LT 2.0	$199	GROLIER 97 MPC Encyclopedia	$59	Ray Dream Studio 4.1	$219
Autocad LT 3.0 95	$329	HIJACK 1.0	$45	SMARTSUITE 96	$99
BORLAND C++ 5.0 DEV STE	$199	Infinite Fx	$65	SONY Multiscan 17SF II MNTR	$829
BORLAND C++ 5.0	$149	intellihance 2.0	$85	SOUND FORGE 4.0	$249
Backstage Desktop Studio	$299	JMP 3.1.5	$329	STUDYWARE SAT	$39
CANVAS 5.0	$179	KPT Convolver 1.0	$85	ScreenCam 2.1	$49
CODA FINALE 3.7	$249	KPT Power Photos Vol 1,2,3,4	$85	Soft F/X Pro	$249
COREL OFFICE PRO 7.0	$169	Kal's Power Goo 1.0	$49	SPSS 6.1	$99
ColorDrive 1.5	$99	Kal's Power Tools 3.0	$85	TRUE SPACE 2.0	$299
Conversions+ 3.5	$99	LIGHTWAVE 3D 5.0	$799	The Black Box 2.0b	$69
DELPHI DESKTOP 2	$89	Laplink 7.5	$119	Timeline 6.5	$249
DIRECTOR TOOLBOX PRO	$99	MAC TRANSFER 1.0	$49	TriSpectives Pro 2.0	$149
Director 5.0.1	$299	MATHCAD 6.0+	$149	VIREX 2.9	$49
Director Studio 2.0	$899	MESHPAINT 3D 1.5	$315	VISUAL OBJECTS 1.0C	$179
DrawingSlate II 12X12	$215	MYOB 6.0	$49	Vellum 3D 3.0	$495
Elastic Reality 1.0.1	$219	Maxmedia TV/Pro II	$285	VirusScan 2.0	$45
EndNote Plus 2.1	$165	MediaForge 2.0	$469	VisualCad 2.0	$149
Extreme 3D 2.0	$199	MediaPaint 1.1	$199	WACOM ART Z II 6X8	$285
FILEMAKER PRO 3.0	$129	MiniCad +6.0	$319	ZIP-IT	$35

Smartsuite 96 $99

Delphi Develope 2.0 $149

Corel Draw 7.0 $195

Free America Online Starter Kit & 15 FREE Online hours with EVERY order!

*SAME DAY SHIPPING ON MOST ITEMS.
*SCHOOL PURCHASE ORDERS WELCOME.
*NO SURCHARGE ON CREDIT CARDS.
*IBM & MAC PRODUCTS AVAILABLE.
*ADOBE, SYMANTEC & MICROSOFT PRODUCTS AVAILABLE TO QUALIFIED STUDENTS, TEACHERS AND SCHOOLS.

PHONE (800) 289-3275

**Prices and Availability Subject to Change
**Free AOL Starter Kit While Supplies Last

WE WILL BEAT ANY ADVERTISED PRICE !

The SOFTWARE Source

THE SOFTWARE SOURCE CO, INC.
1750 Brielle Ave, Unit A-2, Ocean NJ 07712
Phone (908) 695-2100 Fax (908) 695-9371

VISA MasterCard DISCOVER

CALL FOR FREE CATALOG!! (800)289-3275

INCLUDES COMPLETE PRICE LIST & FREE PRODUCT LITERATURE

CIRCLE 473 ON READER SERVICE CARD

Look Bright Overnight!

When it comes to your projection system needs, Boxlight Delivers!

- Over 50 models in stock
- Knowledgeable sales people
- Projectors from $2,999
- Panels starting at $1,499
- FREE Lifetime technical support
- 30-day money back guarantee
- 11 years of experience and service

"My Boxlight Representative answered each of my questions with thorough knowledge, kindness and patience. Because of the efforts and attitudes of Boxlight sales representatives, not to mention top quality products, I've become a customer for life!" *–John Matusin, President of Business Insights Group*

http://www.boxlight.com

BOXLIGHT™ CORPORATION

PRESENTING A BETTER WAY™

REVOLUTION 3600

800x600 SVGA
Power Zoom Focus
Video Capable
500 ANSI Lumens
Wireless PC Mouse
PC and Mac Compatible

Revolution 3000

Boxlight 4801

Boxlight 3080+

Call Today and We Will Have You Looking Good Tomorrow

Looking for a quick way to improve your image? Our new Revolution 3600 projector is the lightest, brightest high-resolution projector you can get. We can even set you up with a rental or arrange a low-cost lease. Is 10am tomorrow soon enough?

NUMBER ONE IN RENTALS
800•736•6954

CALL 1-800-762-5757 TODAY!

Government: (800) 497 4009 **Resellers:** (800) 736 6956
International: (360) 779 7901 **Rental:** (800) 736 6954
Fax: (360) 779 3299 **Education:** (800) 689 6676

FedEx Federal Express · UPS · VISA · MasterCard · American Express

An Inc. 500 Company — The Inc 500 logo is a registered trademark of Goldhirsh Group, Inc.

Monday - Friday, 6am - 5pm PST. Purchase orders accepted.
Prices subject to change. Quantities may be limited to stock on hand.

*30-day money back guarantee does not apply to Resellers.

CIRCLE 511 ON READER SERVICE CARD

ATTENTION INTERNET USERS

Call Global. Pay Local.

*International Calling from 10¢ a minute.**

(and save up to 95% to any country in the world)

- FREE software from our website
- FREE trial to any toll-free 800 or 888#
- The first service which allows you to call any phone in the world from your PC
- No setup charges • Cellular Quality

RATES FROM THE U.S. TO	
CANADA	13¢
SWEDEN	17¢
U.K.	18¢
AUSTRALIA	20¢
GERMANY	26¢
SINGAPORE	26¢
JAPAN	29¢

Visit our website for complete details and free software

http://www.net2phone.com

Call us free using Net2Phone at 1-800-438-8879

E-mail us at: info@net2phone.com

NET2PHONE™

Putting global calling within everyone's reach.

Net2Phone requires caller only to have multimedia PC with any PPP Internet connection. Receiving party gets call on regular phone. *15¢ peak. 10¢ off peak. Rates to the U.S.

NET2PHONE IS A TRADEMARK OF IDT CORPORATION

CIRCLE 430 ON READER SERVICE CARD

TOTAL INTERNET

$15.95* MONTHLY

FULLY GRAPHIC! FREE Netscape™

For 56K or T1 please call (800) 573-9438

UNLIMITED! UNCENSORED!

The lowest flat monthly national Internet rate Macintosh™ and Windows™ 3.x/95 compatibility No per minute charges Unlimited tech support 24 hours a day Internet access available in most U.S. cities

http://www.idt.net/

6097

SAVE UP TO 99% MONTHLY WITH IDT

Monthly Usage	Compuserve™	AOL™	AT&T™	IDT
1.5 Hours per day	$73.70	$93.70	$19.95	$15.95
3 Hours per day	$161.45	$226.45	$19.95	$15.95
All day	$1,389.95	$2,084.20	$19.95**	$15.95*

With IDT's EXCEL plan ($19.95 without) With AT&T phone service ($24.95 without) IDT phone rates are up to 50% below AT&T Pricing as of July 1996 and subject to change. IDT is a trademark of IDT Corp. All other trademarks are the property of their respective owners

1-800-374-9438 IDT Internet

CIRCLE 424 ON READER SERVICE CARD

Custom Ultra SCSI Tools

If you want Ultra SCSI Performance use our Teflon Cables & Active Terminators

SCSIVue™ Active Terminator

From: $59

Optional Remote Display

Benefits:
- Improves SCSI Bus Performance
- Less Errors; More Reliable Data Transfer
- Diagnoses Problems • Analyzes Signal Quality

Features:
- Active Regulation • Supports 68 Pin, 50 Pin
- Status Indicators • Gold Contacts

Ultra SCSI 40MB/s Std. & Wide Compatible

Gold Diagnostic Cables

From: $39

Benefits:
- No Loss Of Important Data
- Faster Performance
- Test Cable Integrity

Features:
- Diagnostic Indicators • Large Ferrite Filters
- Triple Shielding (Unique Cable Design)
- Double Gold 20u" Plated Connectors
- Extra Heavy 26 Gauge Wire, 50 & 68 Pin

ULTRA SCSI Cables 40MB/s! Over 60 Cable Styles In Stock

Teflon Custom Internal Cables

Benefits:
- Less Errors, Ultimate Performance
- Silver Wire Improves Signal Quality

Features:
- Perfect 90 Ohm Impedance Match
- Triple Pronged Connector With Gold contacts

From: $39

Custom Internal Cables in 1 DAY!

SCSI 2+3 COMPATIBLE Active Digital Switch

Benefits:
- Share SCSI Devices Between 2 Computers
- Attach up to 14 Devices to 1 Computer

Features:
- 2-1 Active Digital Switch/Repeater
- Regenerates SCSI Signal for Long Runs

Catalog Online @ www.scsipro.com

Granite D•I•G•I•T•A•L *The SCSI Solution Company*

3101 Whipple Rd. • Union City, Ca. 94587 • Ph: 510-471-6442 • Fax 510-471-6267

CIRCLE 454 ON READER SERVICE CARD

Stop Pentium Chip Theft With The CoverLock™

Locks CPU Case/CD ROM/Floppy Drive

- *Prevents Pentium processor and memory chip theft*
- *Secures all internal components*
- *Universal – Fits most CPU Models*
- *Locks in CD ROMs*
- *Optional security cable available to lock down equipment*
- *Locks available keyed alike, keyed differently, or master keyed*
- *Lifetime warranty on all components*

Quick And Easy To Install!

Suggested Retail Price $29.95

Computer Case Lock (COV-400)

CD Rom Lock (COV-400)

Secure-It

Order now — Call 800-451-7592...

8:30 am – 8 pm EST

18 Maple Court, East Longmeadow, MA 01028, USA phone 413-525-7039
FAX: 413-525-8807 EMAIL: secure-it@owls.com INTERNET: http://www.secure-it.com

©1996 Secure-It, Inc.

CIRCLE 433 ON READER SERVICE CARD

THE FINEST PC CIRCUIT BOARDS!!!

HSB COMPUTER LABORATORIES

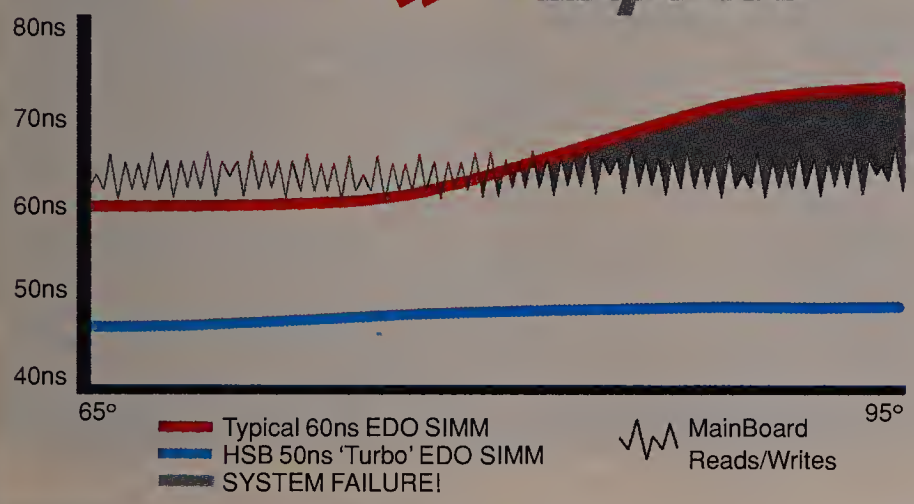
the nation's largest full-line PC circuit board specific manufacturer and distributor caters to individuals and businesses interested in only the finest hardware and service at the best price, provided by a long term, financially stable company. For over a decade, we at HSB have earned our standing as the most reputable circuit board manufacturer and distributor in the industry. Don't make the mistake of buying 'Throw-Away' circuit boards from a company without any long term commitment to your satisfaction. If we sound like what you're looking for, please give us a call at...

(800) 497-0401

CUSTOMER SERVICE...

- ✓ A rigorous 72 hour burn-in procedure. We will not ship any board that does not perform flawlessly.
- ✓ A full 3 year warranty on all HSB made circuit boards. This warranty covers 100% of both parts and labor.
- ✓ A limited lifetime warranty is included on all 'Turbo' SIMM and DIMM memory modules, and all CPU's.

TurboRAMExpress



For about the same price you'd pay for unreliable, 'Bargain Basement' memory, you could have the finest memory the industry has to offer, on hand just a day after you place your order. Quality MainBoards need 60ns memory as an absolute minimum. Heat, humidity and time can radically slow down your memory's access speed. Why run your PC at the ragged-edge of stability? Insist on 'Turbo' RAM...

From us you'll receive...

- Free overnight express shipping on all 'Turbo' RAM.
- Same day shipping on virtually all memory orders placed by 5pm EST.
- Guaranteed compatibility.
- Our 60 day 100% money-back guarantee.
- One of the nation's largest 'Turbo' RAM inventories.

HSB 64-Bit AT and ATX MainBoards

Our MainBoards are the finest on the market, designed from the ground up to compete head-to-head with the most expensive and sophisticated designs available. Our MainBoards are guaranteed to outperform all other comparable PC MainBoards. You'll also receive our unparalleled three year manufacturer's warranty covering 100% of both parts and labor on all HSB circuit boards. Whether you're upgrading your existing system, or building a new one from scratch, you can't go wrong with HSB...

HSB 'Turbo' RAM Memory

Our 72-Pin EDO SIMM's are tested down to 50ns for the utmost in compatibility, stability and speed. Our 55ns ECC SIMM's are specifically engineered to take full advantage of 'Error Correction Circuitry' capable MainBoard chipsets. Keep in mind that our top grade memory modules are assembled right here in the USA, and feature an unprecedented limited lifetime warranty against manufacturing defects. If your philosophy is 'Nothing But The Best', we also offer a wide selection of the industry's fastest 168-Pin Synchronous DIMM memory modules...

HSB 128-Bit and 64-Bit PCI Bus Video Cards

As is the case with all of our MainBoards, HSB manufactures and distributes only the fastest, most reliable and trouble free video accelerators available. All HSB OEM video cards are PCI 'Plug & Play' compatible, offer up to16.7M color capability, feature a full 3 year warranty and boast the guaranteed fastest, most up-to-date video drivers for all popular software and operating systems, with the finest 24-hour OEM BBS video driver support. Always remember that video cards are only as fast and stable as the drivers that work with them...

HSB COMPUTER LABORATORIES

MANUFACTURERS • DISTRIBUTORS • WHOLESALERS

Please call for up to the minute pricing, or to receive your free color catalog!

HSB gladly accepts major credit cards and COD's. HSB Corporation - 34208 Aurora Road #297 Cleveland, OH 44139 216-498-1356 [Local] 216-498-1374 [Fax]

BASON HARD DRIVE WAREHOUSE 800-238-4453

Smaller than 1.0GB

100MB Conner CP3100	SCSI	$45
540MB IBM 3540	SCSI	$125
540MB Seagate 3541A	IDE	$125
640MB Quantum 640AT	IDE	$135
640MB Seagate 3630A	IDE	$135
640MB WD AC2635	IDE	$135
840MB Seagate 3850A	IDE	$155
840MB WD 2850	IDE	$155

1.0 GB

Conner 3107L	SCSI	$249
IBM DPES	SCSI	$269
Maxtor 71084A	IDE	$179
Quantum 31080S	SCSI	$259
Seagate 31081A	IDE	$169
Seagate 51080A	IDE	$179
Seagate 51080N	SCSI	$249

1.2 GB

Maxtor 71336A	IDE	$189
Quantum 31280A	IDE	$215
Quantum 31280S	SCSI	$279
Seagate 51270A	IDE	$189
Seagate 31276A	IDE	$179
WD 21200A	IDE	$195

1.6 GB

Maxtor 71626A	IDE	$219
Seagate 31621A	IDE	$205
WD 21600A	IDE	$219

1.7 GB

Quantum 31700	IDE	$225

2.0 GB

Conner 2105S	SCSI	$519
Conner 2107S	SCSI	$569
HP 3325A	SCSI	$369
HP 3728A	SCSI	$389
IBM DORS	SCSI	$339
IBM DFHS	SCSI	$429
IBM DFMS	SCSI	$339
Maxtor 72004A	IDE	$259
Micropolis 4221	SCSI	$479
Micropolis 4421AV	SCSI	$409
Quantum 32150S	SCSI	$519
Quantum 32110S	SCSI	$399
Quantum 32170S	SCSI	$429
Quantum 32210T	IDE	$429

2.0 GB

Seagate 32430N	SCSI	$499
Seagate 32550N	SCSI	$629
Seagate 32140A	IDE	$249
Seagate 12550N	SCSI	$509
Seagate 32151N	SCSI	$499
Seagate 32155N	SCSI	$509
WD 32100A	IDE	$269

2.5 GB

Seagate 52520A	IDE	$299
WD AC32500	IDE	$279

3.0 GB

Seagate 43400N	SCSI	$399
WD 33100	IDE	$349

4.0 GB

Conner 4207S	SCSI	$899
Fujitsu 2934S	SCSI	$759
IBM DFHS	SCSI	$759
IBM DFRS	SCSI	$559
Micropolis 3243	SCSI	$789
Micropolis 3243AV	SCSI	$979
Quantum GP34301	SCSI	$799
Quantum 34300	SCSI	$829
Seagate 15230N	SCSI	$839
Seagate 15150N	SCSI	$989

9.0 GB

Micropolis 1991	SCSI	$1649
Micropolis 1991AV	SCSI	$1749
Seagate 410800N	SCSI	$1649
Seagate 19171N	SCSI	$1949

Controllers

Adaptec	
1542CF	$165
2940 PCI	$195
2940 PCI U-Wide	$239
2940 PCI Ultra	$189
Sunjak (w/kit)	
SJ-1500 EIDE	$25
SJ-7048S VESA	$139
SJ-3000 PCI	$99
SJ-3000W Wide	$139

Multimedia

CD-ROM Drive		
4x	IDE / SCSI	$69 / $139
6x	IDE / SCSI	$79 / $259

Tape Drives

QIC		
4.0GB	Conner 4000I	$359
8.0GB	Colorado T4000S	$399
DAT		
2.0GB	Conner MS2000Ext	$599
2.0GB	Conner 4320	$549
2.0GB	Conner CTD2004	$549
2.0GB	WangDat 3100	$549
2.0GB	HP 35470	$549
2.0GB	HP C1534	$549
2.0GB	ExaByte 4200	$749
4.0GB	Conner 4324	$599
4.0GB	WangDat 3200	$659
4.0GB	HP 1536	$659
4.0GB	HP 35480	$659
7.0GB	ExaByte 8205XL	$899
8.0GB	Conner 4326	$699
8.0GB	WangDat 3400	$699
8.0GB	HP 1533	$859
8.0GB	Conner CTD8000	$699
8.0GB	Sony 5000	$699
14.0GB	ExaByte 8505XL	$1799
16.0GB	Conner 4584	$1199

Wide SCSI Drives

1.0GB	Quantum 31070W	$269
2.0GB	Fujitsu 2915QAU	$449
2.0GB	IBM DORS-W Ultra	$409
2.0GB	IBM DFRS-W	$359
2.0GB	IBM DFHS-W	$559
2.0GB	Quantum 32150W	$559
2.0GB	Quantum 32170W	$499
2.0GB	Quantum DSP3210W	$459
2.0GB	Quantum 32151W	$499
2.0GB	Seagate 32430W	$559
2.0GB	Seagate 32550W	$699
2.0GB	Seagate 32155W Ultra	$519
4.0GB	Conner 4207W	$929
4.0GB	Fujitsu 2934QAU	$859
4.0GB	IBM DFRS-W	$599
4.0GB	Micropolis 3243W	$949
4.0GB	Quantum 34301W	$829
4.0GB	Quantum 34300W	$859
4.0GB	Seagate 15230W	$979
4.0GB	Seagate 15150W	$1099
9.0GB	Micropolis 1991W	$1799
9.0GB	Micropolis 1991WAV	$1859
9.0GB	Seagate 410800W	$2059

3.0GB SCSI Seagate 43400N $399

2.0GB SCSI IBM DORS $339

Always the Low Price Leader! Super High-Capacity Experts!

2.5" Notebook Drives

IDE Drives		
340MB	Seagate 9385AG	$169
520MB	Seagate 9655AG	$189
540MB	Quantum 20540EUA	$209
540MB	Toshiba 1924FCV	$219
540MB	WD AL2540	$149
730MB	IBM 2720	$209
810MB	Fujitsu 2713TA	$229
810MB	Toshiba MK1926FCV	$269
1.0GB	Fujitsu 2714TA	$299
1.0GB	IBM SANADA-21080	$329
1.2GB	IBM DPRA-21215	$339
1.2GB	Toshiba 2720FC	$379
1.3GB	Toshiba 1301MAV	$389
2.0GB	Toshiba 2101MAN	$539

BASON MEMORY WAREHOUSE

Call us!

Or visit our Web Page for everyday new low prices!

800-400-9064

http://www.basoncomputer.com

Standard 30-Pin SIMM

4MB	4x3/4x9	$29/$39

Standard 72-Pin SIMM

4MB	1x32/36	$24/ $34
8MB	2x32/36	$45/ $65
16MB	4x32/36	$89/$109
32MB	8x32/36	$185/$229

EDO 72-Pin SIMM

4MB	1x32	$24
8MB	2x32	$43
16MB	4x32	$89
32MB	8x32	$185

72-Pin DIMM for Notebook

16MB	4x32	5.0V	$145
16MB	4x32	3.3V	$185

Memory for name brand notebooks also available

- 30 day money back guarantee
- Same day shipping on most orders
- No surcharge for credit cards
- Please add $59 for external drives
- Prices are subject to change without notice

Call: (818)727-9054 • Fax: (818)727-9066
Email: basonwm@basoncomputer.com
http://www.basoncomputer.com

CIRCLE 4D1 ON READER SERVICE CARD

LOWEST PRICES ANYWHERE!

TOSHIBA

Satellite 110CS	$1578
SatellitePro 420CDT	$2945
Tecra 500CDT	$4245
Satellite 200CDS	$1995
Satellite Pro 430CDT	$3299

Notebook Drives

1.3GB Tecra 720	$517
2.1GB IBM 360, 755	$714

Monitors

KDS VSX-7 17"	$549
ViewSonic 17EA 17"	$643
Sony 17SF2 17"	$759
NEC M700 17"	$768

Printers

Epson Stylus 500 Color	$269
Epson Stylus Pro Color	$365
HP LoserJet 6P	$752
HP LoserJet 5	$1275

SOUTHLAND MICRO SYSTEMS

UPGRADE YOUR MEMORY!

8MB	Toshiba 420,720	$99
16MB	Toshiba 420,720	$175
32MB	Toshiba 420,720	$415
16MB	Toshiba 500, 650	$175
8MB	IBM 760E, 365, 560	$117
16MB	IBM 760E, 365, 560	$195
8MB	Compaq 4100	$99
16MB	Compaq 4100	$175

Over 20,000 Products In Stock Ready to Ship! **CALL FOR FREE CATALOG!** Source Code 830197

Sales/Inquiries 714-707-3082
24 Hour Fax 714-768-7307
All price subject to change without notice.

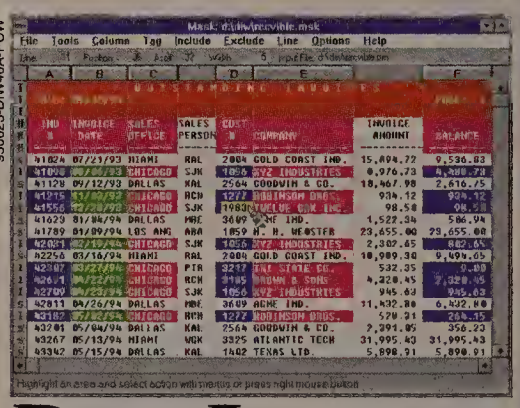
ORDER 6AM - 6PM PST • MON - FRI
1-800-258-2721
Visit Our Web Site @ http://www.club-pc.com

ClubPC®
60 Parker, Irvine, CA 92618

CIRCLE 5D2 ON READER SERVICE CARD

IMPORT DATA FROM ANY COMPUTER REPORT INTO:

950023-DIW40A-PCW



Access
Excel
dBase
1-2-3
Paradox
FoxPro
Approach
Quattro
Clarion

DataImport™ 4.0 for Windows™

Go beyond the limitations of import wizards and parsers. Get **TOTAL CONTROL** of your data! With DataImport you can **selectively import data** from columnar and non-columnar text-based reports, dynamically clean-up reports, create data files in **37 output formats** or add data to existing files. DataImport does it all. Call today!

$189 single user $495 5-user LAN

SPALDING SOFTWARE

(770) 449-0594
Fax: (770) 449-0052
email: di-pcw@spaldingsoft.com
http://www.spaldingsoft.com
CIS: GO SPALDING, Lib 2, diwtd.zip

FREE DEMO ONLINE OR CALL

CIRCLE 434 ON READER SERVICE CARD

SVGA Splitters

http://www.hallresearch.com

HRT
HALL RESEARCH TECHNOLOGIES
800-959-6439
714-641-6607 fax: -6698
1506 Brookhollow Dr.,
Santa Ana, CA 92705

Celebrating Our 12th year!

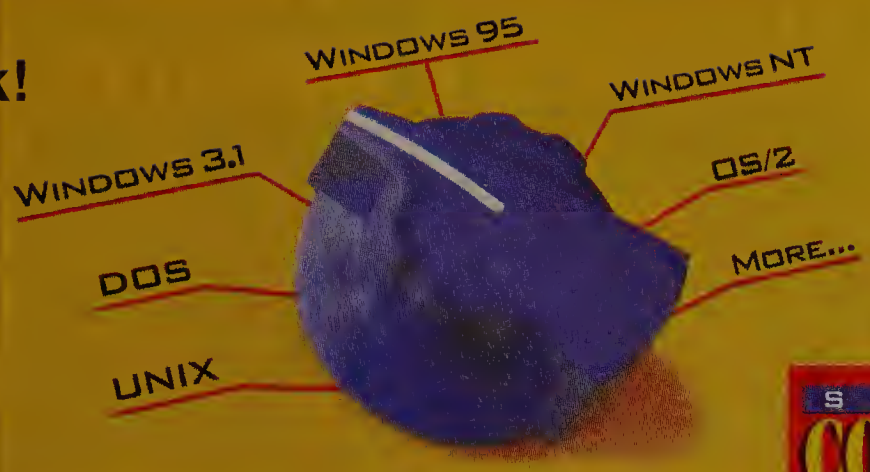
Toll-Free Support
One Year Warranty
Quantity Discounts

- Display your PC's screen on many monitors simultaneously
- Perfect for demos, training and remote monitoring
- Proven wideband amplifier assures bright and crisp image - GUARANTEED!
- Automatically access one PC from two keyboards with ease
- Quality monitor and keyboard extension cables available to 500 feet
- Exclusive video switches, multiplexers and other unique products

CIRCLE 459 ON READER SERVICE CARD

Windows NT • Solaris • Linux • Windows 95 • OS/2 • PC-DOS • SCO UNIX • NetWare • NeXT Step • Windows 95 • UnixWare • XENIX • Windows v3.x • DOS/V • Windows 95J • Warp • MS-DOS • Linux • Merlin • Coherent Unix • Lynx OS • Warp • Free BSD • QNX

Switch without Risk!



SYSTEM COMMANDER

System Commander makes it safe and easy to add as many OSes to your PC as you want!

Easy Automatic Installation
- Prepares your PC for new OSes in minutes
- Simply select the OS you want and *System Commander* does the rest
- To use another OS simply reboot and make another selection

Money-Saving Flexibility
- Minimize hardware expenses by putting up to 100 OSes on one PC
- Use any combination of hard drives
- Use any Intel compatible OS or combination of OSes, in English or any other language

System Commander is only $99.95 and comes with an unconditional 60 day money back guarantee. Get **Free** overnight shipping when you mention this ad. *Order it now and have it on your desk tomorrow morning!

"Highly recommended"
John C. Dvorak, PC Magazine

Free
overnight shipping*
when you mention this ad.

800•648•8266
www.v-com.com

V Communications, Inc.
4320 Stevens Creek Blvd, #120-4PCW
San Jose, CA 95129
408.296.4224 fax 408.296.4441

* When ordered before noon PST. No Saturday delivery. Standard shipping outside US. CA res. add $7.25 sales tax. Offer subject to change without notice. All logos and product names are trademarks of their respective companies. VISA/MC/Amex ©1996

CIRCLE 468 ON READER SERVICE CARD

Get Direct Access to 150,000 Key Management Buyers!

Mailed six times a year, PC World Action Cards are a uniquely effective card deck advertising program delivering 150,000 PC-proficient managers who buy direct and have bought a PC-related product within the last 90 days via Direct Response. 60% of them receive no other card deck! Frequency discounts are available to advertisers in PC World's Marketplace Advertising section.

PC WORLD
ACTION CARDS
50 Washington Street, Norwalk, CT 06854-2710

For more information, call
(Eastern U.S.) 203-857-5101
(Western U.S.) 203-857-5102

Need More Space?

Get Some from Road Warrior® and Tear Up the Open Road!

Now Available At:

COMPUSA THE COMPUTER SUPERSTORE 1•800•COMPUSA

Fry's ELECTRONICS

Road Warriors need their space! You don't have time to be slowed down by a tired-out, full hard disk drive. So get the freedom you deserve with the space you need: Road Warrior® Notebook Hard Drive Upgrades get you on the move. Road Warrior has been providing hard drive upgrades and portable hard drives – up to 2.1 GB – for more than eight years. Ask your favorite retailer about installing a Road Warrior hard drive in your notebook. Or, for you under-the-hood types, upgrade kits are available. So step into some Road Warrior Gear – and step on the gas.

Cruise the Road Warrior Outpost! http://warrior.com
Or, use the phone: (800) 274-4277 ext. 718

Gear for the Mobile Professional.

CIRCLE 487 ON READER SERVICE CARD

BUSINESS APPLICATIONS

LASER AND INK JET PRINTER LABELS

Nobody but NOBODY beats our prices - or our quality.

DeskTop offers first class printer labels at the lowest prices anywhere - 30% to 40% less than advertised or even store brands.

Full selection, unsurpassed quality: all popular sizes, styles and applications. Direct from the manufacturer with a Money-back guarantee.

Visa, Mastercard accepted.

DeskTopLabels
7277 Boone Avenue North,
Minneapolis, Minnesota 55128-1519

Check us out on the web!
http://desktop.meyers.com
or call today 800-241-9730

CIRCLE 422 ON READER SERVICE CARD

BUSINESS APPLICATIONS

PICK A PARTNER!

Church Partner
7 modules • *Used by 39 denominations for 10 years*

School Partner
6 modules • *Perfect for schools and daycares, private or church-related*

Accounting Partner
Great new features
General Ledger, Accounts Payable, Payroll

VISIT US ON THE INTERNET!
http://www.intraweb.com/summit.htm

SUMMIT SYSTEMS, INC.
16 Berry Hill Rd., #121
Columbia, SC 29210-6433

WINDOWS or DOS DEMO AVAILABLE
1-800-228-5857

CIRCLE 478 ON READER SERVICE CARD

ONLINE

FREE WEBSITE

BUSINESS

PERSONAL

Construct your own web pages & go online with the world's leading web service provider

NO HIDDEN CHARGES
No setup fee
No bandwith fees
Super T3 connection
Dedicated Servers
Unlimited Changes
Your own web address
FREE Software download

ONLINE SETUP

For More Info Call:
(416) 638-4411

Or log on to:
www.ultrapage.com

CIRCLE 412 ON READER SERVICE CARD

SERVICES/SUPPLIES

1-800-8-GLOBAL
GLOBAL

FREE catalog

228 page guide to computer furniture, supplies & accessories

COMPUTER SUPPLIES
11 Harbor Park Dr.
Dept. 94 PCW
Port Washington, NY 11050

CIRCLE 508 ON READER SERVICE CARD

BUSINESS APPLICATIONS

The Data Entry Emulator™

Full featured, heads-down data entry, with...

- Two-pass verification
- Powerful editing capability
- Easy output reformatting
- Paint the screen formatting
- Supervisor & batch control
- Customizable menus
- Operator statistics
- Key from images (NEW!)
- Tutorial exercises

FREE 30-day trial

PC | PC LAN | S/36 | AS/400

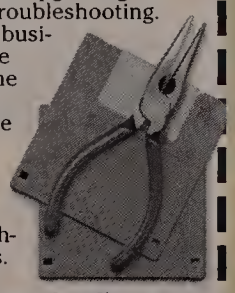
COMPUTER KEYES
21929 Makah Rd.
Woodway, WA 98020
Fax: 206-776-7210
Tel: 206-776-6443
USA: 800-356-0203

EDUCATION

Be a PC repair expert!

CAREER-LEVEL HOME STUDY

Learn PC repair, upgrading, installation, and troubleshooting. Open your own business, or increase your value on the job. Our professional-level home study program lets you learn—and then earn—*without* a costly workshop or high-tech instruments.



Send or call 24 hours a day for your free literature.

Call 800-223-4542

Name _____
Address _____
City/State _____ Zip _____
Age _____ Phone ( ) _____

The School of PC Repair
PCDI, 6065 Roswell Road
Dept. JJA684, Atlanta, GA 30328

CIRCLE 451 ON READER SERVICE CARD

SERVICES/SUPPLIES

DATA RECOVERY: 800 440-1904

Seven good reasons to choose DriveSavers:

1. We're most trusted and respected data recovery specialists
2. 24-hr, onsite and weekend service available
3. Proprietary techniques so advanced we retrieve data others might simply abandon
4. Certified to maintain most drive warranties
5. Over 11 years of data recovery experience
6. Featured by CNN, NextStep, C-Net, and *Forbes*
7. All storage devices; Dos, Win95, WinNT, OS/2, Mac OS, Unix, Sun, SGI, Novell

DRIVESAVERS® DATA RECOVERY
WE CAN SAVE IT!

Call when you need us, or visit DriveSavers at: www.drivesavers.com
400 BEL MARIN KEYS BL., NOVATO, CA 94949, VOICE: 415-382-20[illegible], FAX: 415-[illegible]

CIRCLE 431 ON READER SERVICE CARD

BUSINESS APPLICATIONS

CHURCH SOFTWARE

Discover for yourself why more churches are choosing **PowerChurch Plus.**®
Try out the leading membership and accounting package.
Call today for Free information in the mail.

F1 Software, 208 Ridgefield Drive, Asheville, NC 28806
800/486-1800

CIRCLE 482 ON READER SERVICE CARD

SERVICES/SUPPLIES

MIRROR IMAGES

DISKETTE DUPLICATION

Superior duplication . . .
Your reputation depends on it.
Our reputation assures you of it.

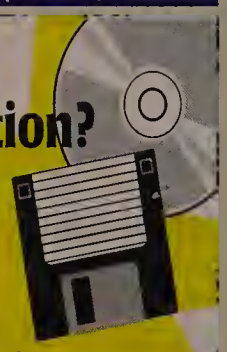
- ALL DISK FORMATS
- FAST 24 HOUR TURNAROUND
- EXCEPTIONAL PRICING AND SERVICE

Call for more information and quotation

800-322-0577
OHIO - NEW JERSEY

SERVICES/SUPPLIES

Disk Duplication? You bet!



Replicate CD-ROMs? Sure.
Packaging? Of course.
Order-Taking and Fulfillment? As always.
Web sites? Very active.

But we have never departed from our core business – the basis of all software production – duplication of diskettes. Star-Byte does it all – for you.

Star-Byte, Inc.
2880 Bergey Rd., Hatfield, PA 19440
Voice: 800-243-1515
Fax: 215-997-2571
email: starbyte@starbyte.com

CIRCLE 479 ON READER SERVICE CARD

SOFTWARE GENERAL

Software Blowout

1000's of low cost programs
Call for **FREE** catalog
MSDOS 6.22 $30; Mathblaster $20
11thHour $25; FaxWorks Pro 3.0 $20
Masterclips 6000 ClipArt CD $20
QuickBooks Pro 4.0 $160; Monopoly CD $20
Mickey and Crew Screen Scenes $10
Windows 3.1 $50; FloorPlan Plus 3D Windows $10
ColorForms $5; Lion King Screen Scenes $10
QuickBooks Deluxe 3.0 CD $50; Windows 3.0 $20
PeachTree Accounting 3.5 Win $90
DOS 5.0 $15; DacEasy Accounting 2.0 Win $30
ClarisWorks for Windows $20; Tie Fighter $25
Civilization CD $10; Flight Unlimited $25
Personal Law Firm $5; BodyWorks 3.0 CD $10
Star Trek Font Pack $5; Dragon's Lair $10
1000's of other titles, call for availability.
+Shipping & Handling; Quantities limited.
www.SoftwareOutlet.com

Software Clearance Outlet
3501 W. Moore Ave. #C
Santa Ana, CA 92704
E-Mail: SCOUTLET@AOL.COM
(800)230-SOFT • (714)434-6425
FAX (714)434-4799

CIRCLE 462 ON READER SERVICE CARD

"I conquered software piracy!"

It's easy with the NEW SentinelWizard GUI

If you sell software without protection, you're losing sales and revenue to piracy. The illegal distribution and use of software is the greatest threat to your company's success.

Fight back! Conquer piracy and ensure your revenue with Sentinel®, the world's #1 software protection.

The most advanced protection is now the easiest to implement. Sentinel features the new SentinelWizard™ GUI to guide you quickly through the implementation process.

Now it's easy to conquer piracy! Call and order your Sentinel Developer's Kit today!

Visit our web site
www.rnbo.com

1-800-852-8569

SENTINEL
Software Protection

RAINBOW TECHNOLOGIES 50 Technology Drive, Irvine, CA 92618 ■ Tel: (714) 450-7300 ■ Fax: (714) 450-7450 ■ *Distributors worldwide*
©1996 Rainbow Technologies, Inc. Sentinel and SentinelWizard are trademarks of Rainbow Technologies. All other product names are property of their respective owners.

CIRCLE 411 ON READER SERVICE CARD

UPGRADES/MEMORY

WE'LL PAY *YOU* FOR YOUR OLD MEMORY

1x9, 4x9, 30 Pin, 1x32, 2x32, 4x32, 1x36, 2x36, 4x36, 8x36, 72 Pin

TRADE-IN $ ANY SIMMS $ UPGRADE

NOTEBOOK, LAPTOP, SUBNOTE, CREDIT CARD (IC DRAM) MODULES

ALL MEMORY HAS VALUE

WE NOW BUY & SELL CPU's

OVER 30 YEARS EXPERIENCE

SOJ TSOP ZIP DRAM, VRAM IBM

THE MEMORY LIQUIDATORS

"The company that buys memory back"

1-800-718-7755

531 Main St., Ste.1174, El Segundo, CA 90245 • Ph. 310-326-5656 • Fax 310-326-7790

CIRCLE 520 ON READER SERVICE CARD

UPGRADES/MEMORY

TANDY UPGRADES

Hard Cards for 1000's

21meg $169 210meg $249
42meg $229 540meg $299

1000 EX & HX Hard Drives

21meg $239 $210meg $349

Upgrade Motherboards

80486DX/4-100 $449
Pentium-100 $789

We sell New and Used Hard Drives, Floppy Drives, Ram Memory, Motherboards, VGA & CGA monitors/Cards, Keyboards, CD-ROM drives, and much more for MOST Tandy models. **Call or write for our FREE catalog.**

DCS Industries
5265 Hebbardsville Rd.
Athens, OH 45701
800-537-3539
U.S. & Canada

Foreign 614-594-4180
FAX 614-592-1527

CIRCLE 493 ON READER SERVICE CARD

SERVICES/SUPPLIES

Insures Your Computer

SAFEWARE's Computerowners insurance policy provides for repair or replacement of your computer hardware, media and purchased software. Annual premiums start at $49. Cover against theft, fire, power surge, natural disasters, and even accidental damage!

Call 1-800-800-1492

SAFEWARE, The Insurance Agency Inc.
5760 N. High Street
PO Box 656
Columbus, OH 43085
Local: 1-614-781-1492

CIRCLE 421 ON READER SERVICE CARD

PC WORLD DELIVERS

Study after study has proven that managers proficient with PCs now control the business PC buying process. Make sure your advertising gets maximum exposure in your best target market.

Call now for more information

PC World Marketplace
203-857-5101
203-857-5102

RECREATION

www.virtualaffairs.com

FREE VIDEO CONFERENCING SOFTWARE

Live Shows!
•
Hottest Pictorials!
•
World Wide Adult Directory
•
Best Hot Links!

CIRCLE 488 ON READER SERVICE CARD

RECREATION

FANTASY SOFTWARE

RELIEVE THE STRESS OF DAILY LIFE WITH OUR

FANTASY DISKS

FANTASY VGA MOVIES – *Over 1 MB* – TALK thru your speaker or SoundBlaster. 1 Movie $29 · 3 Movies $65 · 5 Movies $94

FANTASY VGA GAME – *Over 5 MB with SOUND* - 80 Romantic Scenes – 2-8 Players $79 or $69 w/ purchase of any *FANTASY MOVIE* above

FANTASY PICTURE CD-ROM – 1000+ VGA pictures, with interactive database - search by YOUR grade, category, description, or date viewed.

FANTASY INTERACTIVE MOVIE CD-ROM – 1full length movie spoof of Plan 9 from Outer Space with scenes from the original - create unlimited GIFS from movie.

FANTASY GAME CD-ROM – 2 CD-ROM set containing 1200 MB of movies plus 4 challenging multi-level arcade games.

FREE VHS VIDEO TAPE (1-2 hr) with each CD-ROM: $59 each or all 3 for $149.

Orders Only: 800-243-1515 Ext. 600 CC

24 HRS/7 DAYS • In PA Add Tax
3.5" or Foreign Orders Add $2 per disk
CK/MO to: S Software, P.O. Box 220, Dept. 600CC, Hatfield, PA 19440 / ADD $3 S/H

$1.50 SHAREWARE SPECTACULAR
FREE CATALOG - 600+ PROGRAMS

CIRCLE 405 ON READER SERVICE CARD

RECREATION

world wide bbs

- GET EXOTIC IMAGES, SHAREWARE, & WINDOWS/DOS FILES -UPDATED DAILY!
- FREE UNLIMITED DOWNLOADS!
- NO SUBSCRIPTION REQUIRED!
- AND NOW...LIVE VIDEO GIRLS!

USE YOUR MODEM TO DIAL

011-373-837-1238

MCI CALLERS: DIAL 10288 FIRST, THEN #.

INTERNATIONAL LONG DISTANCE RATES APPLY.
NOT RECOMMENDED FOR MINORS

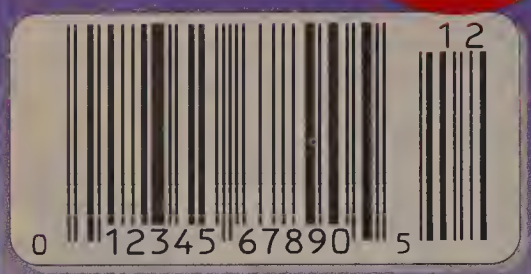
Bar Codes Direct

FROM THE MANUFACTURER

Labeling Software

For Dot Matrix or LaserJet

WINDOWS AND DOS!



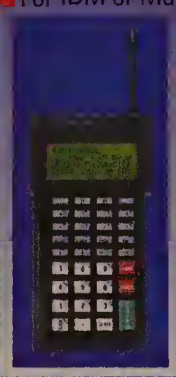
- Any Format, Any Label. WYSIWYG, Text Design
- **Formats for Sears, K-Mart, Penney's, WalMart, TCIF, Logmars, AIAG, etc.**
- UCC-128, UPC/EAN, 2 of 5, Codabar, & Code 39
- Big Text and PCX. Powerful, Versatile, Easy!
- Imports ASCII data files from dBase, etc.
- LabelRIGHT™ for **Windows™ – $295**
- LabelRIGHT™ for **DOS–$279**

Bar Codes for Windows™

- Insert bar codes into any font based Windows program via "Hot Key"
- UPC/EAN, UCC-128,128, 2of5, Codabar, Code 39
- Fonts, Bitmaps and Metafiles, Complete – **$199**

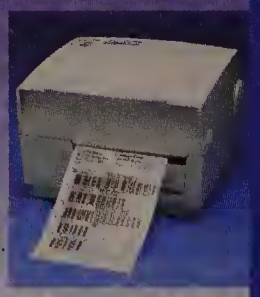
Radio Frequency Terminal

- For IBM or Macintosh Computers



- 400 to 1000 foot Range
- 16 Selectable Frequencies
- 2 way RS-232 Communication
- Kybrd, Wand, Laser or CCD
- 1-16 Terminals/Base Station
- 6.3" x 3.3" x 1.25", 14 oz.
- Base Station – **$845**
- Complete Terminal – **$1090**
- With Integrated Laser – **$1790**

Thermal Transfer Printers



- 2"per second Thermal Transfer – Up to 4"wide
- Supports all Popular Bar Codes; 1 year Warranty
- Prints Bar Codes, Big Text, and PCX Graphics
- Small size, Weighs 20 lbs.
- Complete with labels, ribbon, cable, LabelRIGHT Windows or DOS software, and Datamax Ovation Printer – **$1095**

Portable Bar Code Readers

for PC, Mac and Serial

WITH VOICE!

- Battery Operated Reader – 64K or 256K
- Attaches as 2nd Keyboard or Serial
- Display messages & voice messages prompt operator.
- Pick lists, tables.
- Wand, CCD or Laser Scanner
- UPC/EAN, 128, 2of5, MSI, Code 39, etc.
- Date/time stamps
- Built-in Inventory Programs -No Programming Necessary
- **Very Easy to Create Custom Prompts**
- Small Size-Weighs Only 12 oz.
- 64K Unit Complete with Wand & Voice – **$759**
- 64K Unit with Integrated Laser– **$1299**

Bar Code Readers

for PC, XT, AT, PS/2, Mac and RS-232 Terminals

- Attaches as 2nd Keyboard
- UPC/EAN, Code 128, 2of5, MSI, Code 39, etc.
- Wand, Magstripe, CCD, Slot Badge or Laser
- All European Keyboards Supported
- Superior Read Rates. Made in USA.
- **Top Rated by Independent Reviews**
- Complete Wand only Reader – **$299**
- Complete with Laser Scanner – **$649**

Cordless RF CCD Scanner

- Transmits up to 100' away from Base Station
- Base attaches as 2nd Keyboard to PC or Mac
- Complete Base Station and "Laser-like" RF CCD Scanner with 5" depth of field – **$899**

Ordering is Easy! 800-345-4220

Europe Phone: (353) 1 6614 566 • Europe Fax: (353) 1 6614 622 USA Phone: 408-458-9938 • USA Fax: 408-458-9964

- Same Day Shipping
- 30 Day Money Back Guarantee
- Direct from Manufacturer
- Free "800" Support
- Free UPS Blue in USA

In Europe call our Ireland Office:
353 1 6614 566 (Fax: 353 1 6614 622)

WORTHINGTON DATA SOLUTIONS

CALL FOR FREE CATALOG AND BAR CODE PRIMER!

Keys To Success

Earn your B.S. or M.S. degree in Computer Science—without leaving home and without spending thousands of dollars.

- All Courses Home Study
- Approved for tuition reimbursement by leading corporations
- C++, Using Windows, and Ada courses available
- Career*Path* training in computer programming available

AMERICAN INSTITUTE FOR COMPUTER SCIENCES

ACCREDITED MEMBER
World Association of Universities and Colleges

For free information call **1-800-767-AICS**

BUSINESS DIRECTORY

PC WORLD DELIVERS THE BUYERS YOU NEED TO REACH

Study after study has proven that managers proficient with PCs now control the business PC buying process. Make sure your advertising gets maximum exposure in your best target market.

USED SOFTWARE

- Used IBM Compatible Software
- Most Popular Titles Available
- Save up to 50% on Current Versions
- Huge Savings on Prior Versions
- Includes Original Manuals & Disks
- Guaranteed Complete & Virus Free
- 30 Day Money Back Guarantee
- Amex, Discover, MC & VISA
- Call 7am–4pm PST M–F for Free Price List

Recycled Software, Inc.
PO Box 33999
Las Vegas, NV 89133-3999
800-851-2425 • Fax 702-655-5662

CIRCLE 441 ON READER SERVICE CARD

SOFTWARE TESTERS
WANTED

PC USERS NEEDED TO TEST NEW SOFTWARE FROM YOUR HOME
NO EXPERIENCE NEEDED
FREE SOFTWARE
SEND S.A.S.E TO:
FUTURE-SOFT
20505 U.S. 19 N. #12-271
CLEARWATER, FL 34624

CIRCLE 406 ON READER SERVICE CARD

FREE PRODUCT INFORMATION PC WORLD

NAME

TITLE

COMPANY

ADDRESS

CITY STATE ZIP

PHONE ( ) FAX ( )

INFORMATION FROM ADVERTISERS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200
201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220
221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240
241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260
401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420
421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440
441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460
461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480
481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500
501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520

☐ Check here for a 1-year (12 issue) subscription (U.S. only). You will be billed $19.97.

Circle the number corresponding to the product or product category you need to know more about. Mail or fax the completed card today. Manufacturers will send product information directly to you. Fax to (503) 684-5370.

PRODUCTS FEATURED IN EDITORIAL

601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620
621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640
641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660
661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680
681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700
701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720
721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740
741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760
761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780
781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800
801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820
821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840
841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860
861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880
881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900

PRODUCT CATEGORY INFORMATION 1/97

For information on all of the products mentioned in an article or an entire category of advertised products, circle the appropriate number below.

Editorial Features (see article for numbers)

901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920

Advertised Products

951 Desktop computers
952 Notebook computers
953 Windows 95 software
954 Monitors and video boards
955 Accounting software
956 Graphics software
957 Network/sharing products
958 Printers
959 Multimedia products
960 Utilities
961 Mail order companies
962 Storage devices

January 1997 This card expires May 12, 1997 M1

FREE PRODUCT INFORMATION

For quicker response, fax to (503)684-5370

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 848 PORTLAND OR

POSTAGE WILL BE PAID BY ADDRESSEE

PC WORLD

READER SERVICE DEPARTMENT
12950 SW PACIFIC HWY STE 7
TIGARD OR 97223-9750

FREE PRODUCT INFORMATION PC WORLD

NAME

TITLE

COMPANY

ADDRESS

CITY STATE ZIP

PHONE ( ) FAX ( )

INFORMATION FROM ADVERTISERS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200
201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220
221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240
241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260
401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420
421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440
441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460
461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480
481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500
501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520

☐ Check here for a 1-year (12 issue) subscription (U.S. only). You will be billed $19.97.

Circle the number corresponding to the product or product category you need to know more about. Mail or fax the completed card today. Manufacturers will send product information directly to you. Fax to (503) 684-5370.

PRODUCTS FEATURED IN EDITORIAL

601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620
621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640
641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660
661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680
681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700
701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720
721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740
741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760
761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780
781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800
801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820
821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840
841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860
861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880
881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900

PRODUCT CATEGORY INFORMATION 1/97

For information on all of the products mentioned in an article or an entire category of advertised products, circle the appropriate number below.

Editorial Features (see article for numbers)

901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920

Advertised Products

951 Desktop computers
952 Notebook computers
953 Windows 95 software
954 Monitors and video boards
955 Accounting software
956 Graphics software
957 Network/sharing products
958 Printers
959 Multimedia products
960 Utilities
961 Mail order companies
962 Storage devices

January 1997 This card expires May 12, 1997 M3

FREE PRODUCT INFORMATION

For quicker response, fax to (503)684-5370

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 848 PORTLAND OR

POSTAGE WILL BE PAID BY ADDRESSEE

PC WORLD

READER SERVICE DEPARTMENT
12950 SW PACIFIC HWY STE 7
TIGARD OR 97223-9750

FREE PRODUCT INFORMATION PC WORLD

NAME

TITLE

COMPANY

ADDRESS

CITY STATE ZIP

PHONE ( ) FAX ( )

INFORMATION FROM ADVERTISERS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200
201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220
221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240
241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260
401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420
421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440
441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460
461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480
481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500
501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520

☐ Check here for a 1-year (12 issue) subscription (U.S. only). You will be billed $19.97.

Circle the number corresponding to the product or product category you need to know more about. Mail or fax the completed card today. Manufacturers will send product information directly to you. Fax to (503) 684-5370.

PRODUCTS FEATURED IN EDITORIAL

601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620
621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640
641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660
661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680
681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700
701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720
721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740
741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760
761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780
781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800
801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820
821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840
841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860
861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880
881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900

PRODUCT CATEGORY INFORMATION

1/97

For information on all of the products mentioned in an article or an entire category of advertised products, circle the appropriate number below.

Editorial Features (see article for numbers)

901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920

Advertised Products

951 Desktop computers
952 Notebook computers
953 Windows 95 software
954 Monitors and video boards
955 Accounting software
956 Graphics software
957 Network/sharing products
958 Printers
959 Multimedia products
960 Utilities
961 Mail order companies
962 Storage devices

January 1997 This card expires May 12, 1997 M2

FREE PRODUCT INFORMATION

For quicker response, fax to (503)684-5370

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 848 PORTLAND OR

POSTAGE WILL BE PAID BY ADDRESSEE

PC WORLD

READER SERVICE DEPARTMENT
12950 SW PACIFIC HWY STE 7
TIGARD OR 97223-9750

PC WORLD

PRESIDENT AND CEO Richard J. Marino
Assistant to the President and CEO Colette Cornish

PUBLISHER J. Samuel Huey
Assistant to the Publisher Alexis Meagher

ADVERTISING SALES

VICE PRESIDENT, ASSOCIATE PUBLISHER
Jeff Edman

BUSINESS MANAGER
Patricia Owen

DIRECTOR OF ADVERTISING
Bob Carrigan

EAST

EASTERN ADVERTISING DIRECTOR
Bob Ostrow (508/820-0440)

ADMINISTRATIVE ASSISTANT/ OFFICE MANAGER
Ellen Sanderson

Mid-Atlantic/Manhattan/ Eastern Canada
John Grogan, Mid-Atlantic Advertising Manager (201/587-0090)
Wayne Silverman, Account Manager (201/587-0090)

New England/Ohio
Michael Carroll, Senior Account Manager (508/820-0440)

Southeast
Judy Sutter, Senior Account Manager (770/394-0758)

East & Midwest
Robyn Damiani, Account Representative (201/587-0090)

MIDWEST/TEXAS

MIDWEST ADVERTISING DIRECTOR
Harvey Diamond (972/233-3492)

ADMINISTRATIVE ASSISTANT
Janine Goble

Midwest
Kathy McKay, Account Manager (847/827-4477)

WEST

San Francisco Bay Area (area code 415 and 510)
Corinne Cox, Senior Account Manager (415/243-0500)

Mid-S. F. Peninsula/Oregon/ Washington
Don Reis, Senior Account Manager (415/243-0500)

Fremont, CA/South Bay (area code 408)
Kevin Normandeau, Account Manager (415/243-0500)

West
Duane Hampson, Account Representative (415/243-0500)

Los Angeles/Orange County/ Montana/Wyoming/Western Canada
Bill Hanck, Southwest Advertising Director (310/312-8008)

ADMINISTRATIVE ASSISTANT
Joyce Clarke

Southern California (San Diego), Colorado/Idaho/Nevada/ Utah/New Mexico/Arizona
Lisa Zimmerer, Senior Account Manager (714/250-8081)

CONSUMER ADVERTISING SALES

Eastern U.S.
Edman & Company (212/551-1121)

Michigan/Pennsylvania/Ohio
Hartle & Heth (810/642-7273)

PC WORLD ONLINE SALES

DIRECTOR OF MARKET DEVELOPMENT
Stephen Shore (415/267-4595)

ACCOUNT EXECUTIVE Tom Friesch

SALES REPRESENTATIVE
Melissa Gruber (415/974-7373)

PC WORLD MARKETPLACE
PC WORLD ACTION CARDS

DIRECTOR
Pat Fales (203/857-5115)

EASTERN ACCOUNT MANAGER
Katherine Noto (203/857-5101)

WESTERN ACCOUNT MANAGER
Renick Morris (203/857-5102)

PC WORLD REPRINTS

Kyle Mork (612/582-3810)

MARKETING

MARKETING MANAGER Sandy Wong

PUBLIC RELATIONS MANAGER Lee Doyle

PRESENTATION SPECIALIST
Manisha Patel

ADMINISTRATIVE ASSISTANT FOR MARKETING AND RESEARCH
Kecia Nordgren

CIRCULATION

VICE PRESIDENT, CIRCULATION
Shawne Burke Pecar

ASSISTANT TO THE VICE PRESIDENT
Ann Dempsey

SENIOR PROMOTION MANAGER
Ellen DiMatteo

CIRCULATION BUSINESS MANAGER
David Cobb

SINGLE COPY SALES MANAGER
Cheryl Stephenson

BILLING AND RENEWAL MANAGER
Lisa Radler

PROMOTION MANAGERS
Richard McCarthy, Shira Weisbach

CIRCULATION ASSISTANT
Jennifer Carson

CUSTOMER SERVICE SPECIALIST
Daniella Zucker

RESEARCH

VICE PRESIDENT, RESEARCH
Cheryl Brink

RESEARCH MANAGER Jocelyn Ritchie

SENIOR RESEARCH ANALYST Jon Friesch

RESEARCH ANALYST Sandra O'Boyle

PRODUCTION

VICE PRESIDENT, MANUFACTURING
Linda Manes Goodwin

SENIOR PRODUCTION MANAGER
Nadia Maudsley

ADVERTISING INFORMATION MANAGER
Mike Wallace

ASSISTANT PRODUCTION MANAGERS
Kathy Badertscher, Nancy Jonathans

ADVERTISING PRODUCTION COORDINATOR
Anne Merkelson

ADVERTISING INFORMATION ASSISTANT
Dan Gordon

ADMINISTRATION

OFFICE OF THE CEO

MANAGEMENT ASSOCIATES
Benjamin Jones, Angela Weber

HUMAN RESOURCES AND INFORMATION SYSTEMS

VICE PRESIDENT Richard Willoughby

MANAGER Thalia Ohara

REPRESENTATIVE Christine Selfridge

VICE PRESIDENT, CIO Henri Froissart

DIRECTOR NETWORK SYSTEMS
Norman Noble

SENIOR MEMBER, TECHNICAL STAFF
Rodney Barnes

MEMBERS, TECHNICAL STAFF
Pearl Chan, Stan Erhart

FINANCE

SENIOR VICE PRESIDENT, CFO
Vicki Peilen

ACCOUNTING/OPERATIONS MANAGER
Pat Murphy

ACCOUNTING/FACILITIES MANAGER
Michelle Reyes

DIRECTOR OF FINANCIAL OPERATIONS
Madeleine Buckingham

Advertiser Index A-Z

Get more information—circle the appropriate number on the reader service card.

Reader service number		Page
10	ACS Innovations	57
3	ADI Systems	241
19	AIMS Lab, Inc.	236-M7
9	ALR	13
45	APC	88-89
6	AST COMPUTER	38-39
5	ATI Technologies	93
25	ATI Technologies	95
23	Austin/IPC	145-147
36	Banner Blue	237
91	Caere	247
42	Caliber Computer	255
–	Canon Computer Systems	2-3
–	Casio, Inc.	249A-B
47	Compaq Computer Corporation	85
35	Compaq Computer Corporation	243A-B
51	Compaq Computer Corporation	255A-B
61	Compaq Direct	138-139
53	Compulink Research	133
68	Computer Discount Warehouse	120-121
68	Computer Discount Warehouse	272-273
–	COMTRAD Industries	236D
70	Corel Corporation	151
93	Corel Corporation	218
69	Creative Labs	14
74	Cybermax	244-245
–	Dell	C5-C8
37	DeLorme	87
71	Delta Products	236B
79	Diamond Multimedia Systems	226
60	Diamond Multimedia Systems	251
84	DTK	61
–	Epson America, Inc.	259B, 300-301
89	Fujitsu	209

PC World is a publication of International Data Group, the world's largest publisher of computer-related information and the leading global provider of information services on information technology. International Data Group publishes over 190 computer publications in 62 countries. Forty million people read one or more International Data Group publications each month. International Data Group's publications include: **ARGENTINA**'s Computerworld Argentina, Infoworld Argentina; **ASIA**'s Computerworld Hong Kong, Computerworld Malaysia, Computerworld Southeast Asia, PC World Hong Kong, PC World Malaysia, PC World Singapore; **AUSTRALIA**'s Australian Macworld, Australian PC World, Computerworld Australia, IDG Sources, Network World, Reseller; **AUSTRIA**'s Computerwelt Oesterreich, PC Test; **BRAZIL**'s Computerworld, Mundo IBM, Mundo Unix, PC World, Publish; **BULGARIA**'s Computerworld Bulgaria, Ediworld, PC & Mac World Bulgaria; **CANADA**'s Direct Access, Graduate Computerworld, InfoCanada, Network World Canada; **CHILE**'s Computerworld, Informática; **COLDMBIA**'s Computerworld Colombia; **CZECH REPUBLIC**'s Computerworld, Elektronika, PC World; **DENMARK**'s CAD/CAM World, Communications World, Computerworld Danmark, Lotus World, Macintosh Produktkatalog, Macworld Danmark, PC World Danmark, PC World Produktguide, Windows World; **ECUADOR**'s PC World; **EGYPT**'s Computer World (CW) Middle East, PC World Middle East; **FINLAND**'s MikroPC, Tietoverkko, Tietoviikko; **FRANCE**'s Distributique, Golden Mac, InfoPC, Languages & Systems, Le Guide du Monde Informatique, Le Monde Informatique, Télécoms & Reseaux; **GERMANY**'s Computerwoche, Computerwoche Extra, Computerwoche Focus, Computerwoche Karriere, Information Management, Macwelt, Netzwelt, PC Welt, PC Woche, Publish, Unit; **HUNGARY**'s Alaplap, Computerworld SZT, PC World; **INDIA**'s Computers & Communications; **ISRAEL**'s Computerworld Israel, PC World Israel; **ITALY**'s Computerworld Italia, Lotus Magazine, Macworld Italia, Networking Italia, PC World Italia; **JAPAN**'s Computerworld Japan, Macworld Japan, SunWorld Japan, Windows World; **KENYA**'s East African Computer News; **KOREA**'s Computerworld Korea, Macworld Korea, PC World Korea; **MEXICO**'s Compu Edicion, Compu Manufactura, Computacion/Punto de Venta, Computerworld Mexico, MacWorld, Mundo Unix, PC World, Windows; **THE NETHERLANDS**' Computer! Totaal, LAN Magazine, MacWorld; **NEW ZEALAND**'s Computer Listings, Computerworld New Zealand, New Zealand PC World; **NIGERIA**'s PC World Africa; **NORWAY**'s Computerworld Norge, C/World, IDG Direct Response, Lotusworld Norge, Macworld Norge, Networld, PC World Ekspress, PC World Norge, PC World's Product Guide, Publish World, Student Data, Unix World, Windowsworld; **PANAMA**'s PC World; **PEDPLE'S REPUBLIC OF CHINA**'s China Computerworld, China Network World, Electronics International, PC World China; **IDG HIGH TECH BEIJING**'s New Product World; **IDG SHENZHEN**'s Computer News Digest; **PERU**'s Computerworld Peru, PC World; **PHILIPPINES**' Computerworld, PC World; **PDLAND**'s Computerworld Poland, PC World/Komputer; **PORTUGAL**'s Cerebro/PC World, Correio Informatico/Computerworld, MacIn; **ROMANIA**'s PC World; **RUSSIA**'s Computerworld-Moscow, Mir-PC, Sety; **SLDVENIA**'s Monitor Magazine; **SDUTH AFRICA**'s Computing S.A.; **SPAIN**'s Amiga World, Computerworld España, Comunicaciones World, Macworld España, NeXTworld, PC World España, Publish, Sunworld; **SWEDEN**'s Attack, ComputerSweden, Corporate Computing, Datalngenjoren, Lokala Natverk/LAN, Lotus World, MAC&PC, Macworld, Maxi Data, Mikrodatorn, PC World, Publishing & Design (CAP), Windows World; **SWITZERLAND**'s Computerworld Schweiz, Macworld Schweiz, PC & Workstation; **TAIWAN**'s Computerworld Taiwan, Global Computer Express, PC World Taiwan; **THAILAND**'s Thai Computerworld; **TURKEY**'s Computerworld Monitor, Macworld Turkiye, PC World Turkiye; **UKRAINE**'s Computer World; **UNITED KINGDOM**'s Lotus Magazine, Macworld, Sunworld; **UNITED STATES**' AmigaWorld, Cable in the Classroom, CD Review, CIO, Computerworld, Desktop Video World, DOS Resource Guide, Electronic News, Federal Computer Week, Federal Integrator, GamePro, IDG Books, Infoworld, Infoworld Direct, Laser Event, Macworld, Multimedia World, Network World, NeXTworld, PC Games, PC Letter, PC World, Publish, Sumeria, SunWorld, SWATPro, Video Event; **VENEZUELA**'s Computerworld Venezuela, MicroComputerworld Venezuela; **VIETNAM**'s PC World Vietnam.

INDEX

Reader service number		Page
94	Fujitsu	46-47
103	Fujitsu	48-49
-	Gateway 2000	64-81
-	Gemini	243
-	Hewlett-Packard PC	32-33
-	Hewlett-Packard Colorado	59
-	Hewlett-Packard Sure Store	149
110	Hyundai Monitor Division	165
108	Iiyama	63
-	Intuit	233
170	KDS	197
128	Kingston Technology	217
152	Knowledge Exchange	30
127	Kyocera Electronics, Inc.	163
-	LA TRADE	275
96	LG Electronics U.S.A., Inc.	40
134	LG Electronics U.S.A., Inc.	199
-	Logitech	101
139	Macromedia	91
140	Magitronic	97
143	Matrox Graphics, Inc.	42-43
147	Mega Haus Hard Drive	280
-	Micrografx	236C
153	MicroHelp	103
149	Micron Electronics	7
160	Micron Electronics	173
149	Micron Electronics	10-11
160	Micron Electronics	167-172
149	Micron Electronics	8-9
-	Microsoft	C2-P1, 35
157	Midwest Computer Works	274
169	Midwest Computer Works	278-279
169	Midwest Memory Works	281
201	NEC CD ROM	26-27
203	NEC Laptop	36-37
180	NEC PowerMate	178-179
164	Nokia	23
161	Nomai	259
-	NRI Schools	261
-	Okidata	143
162	Olivetti	110-111
173	Palm Computing	141
195	PC America	276
165	PC Connection	270-271
129	PCs Compleat	266-269
172	PCW Online	259A
192	Play Incorporated	263
175	Plextor	20
-	PointCast	115
196	PowerQuest	230
-	Prodigy	202-203
184	ProGen Systems	44
-	Qualcomm	106
-	Quantex	153-158
204	Ricoh	220
213	S3, Inc.	235
-	Samsung Electronics America	113
209	Seagate	105
188	Seiko Instruments	236A
206	SMILE, Int'l	228
211	Smith Micro	257
130	SoftKey	236-M5
200	SoftKey	236-M8
-	Sony Electronics	24-25, 299
253	SPSS	119
210	STB Systems	224
232	SYNCRONYS SW	28
124	Tektronix	31
216	Terraglyph	236-M10
215	Terraglyph	236-M11
242	Texas Instruments	117
-	The Computer Book Club	277
228	TOSHIBA	98-99
243	TRAVELING SW	211
240	Twinhead	131
250	Umax Technologies	223
241	U.S. Computer Corp.	201
-	U.S. Robotics	174, 185-188
231	USA Flex	265
255	V-Communications	22
260	ViewSonic	129
224	ViewSonic	18-19
-	VISIO	183
254	WinBook	16-17
258	YAMAHA	236-M2

Advertiser Index by Product Category

Get more information—circle the appropriate number on the reader service card.

HARDWARE

Boards/Cards/Chips

5	ATI Technologies	93
25	ATI Technologies	95
69	Creative Labs	14
60	Diamond Multimedia Systems	251
128	Kingston Technology	217
143	Matrox Graphics, Inc.	42-43
213	S3, Inc.	235
210	STB Systems	224

Communications/Fax/Modems

79	Diamond Multimedia Systems	226
-	U.S. Robotics	185-188

Computers

9	ALR	13
6	AST COMPUTER	38-39
23	Austin/IPC	145-147
42	Caliber Computer	255
47	Compaq Computer Corporation	85
47	Compaq Computer Corporation	85
53	Compulink Research	133
74	Cybermax	244-245
-	Dell	C5-C8
84	DTK	61
-	Gateway 2000	64-81
-	Hewlett-Packard PC	32-33
140	Magitronic	97
149	Micron Electronics	7
160	Micron Electronics	173
149	Micron Electronics	10-11
160	Micron Electronics	167-172
184	ProGen Systems	44
-	Quantex	153-158
-	Sony Electronics	24-25
241	U.S. Computer Corp.	201

Desktop Publishing

61	Compaq Direct	138-139

Input Devices

-	Microsoft	35

Laptop/Notebooks

23	Austin/IPC	145-147
-	Casio, Inc.	249A-B
53	Compulink Research	133
-	Dell	C5-C8
94	Fujitsu	46-47
103	Fujitsu	48-49
-	Gateway 2000	64-81
140	Magitronic	97
160	Micron Electronics	167-172
149	Micron Electronics	8-9
203	NEC Laptop	36-37
162	Olivetti	110-111
173	Palm Computing	141
242	Texas Instruments	117
228	TOSHIBA	98-99
240	Twinhead	131
254	WinBook	16-17

Monitors/Displays

3	ADI Systems	241
35	Compaq Computer Corporation	243A-B
71	Delta Products	236B
110	Hyundai Monitor Division	165
108	Iiyama	63
170	KDS	197
96	LG Electronics U.S.A., Inc.	40
164	Nokia	23
-	Samsung Electronics America	113
206	SMILE, Int'l	228
260	ViewSonic	129
224	ViewSonic	18-19

Multimedia

-	Casio, Inc.	249A-B
-	Epson America, Inc.	259B
-	Hewlett-Packard Sure Store	149
201	NEC CD ROM	26-27
192	Play Incorporated	263
204	Ricoh	220

Other

10	ACS Innovations	57
-	Casio, Inc.	249A-B
-	Epson America, Inc.	259B

Peripheral/Sharing Devices

243	TRAVELING SW	211

Power/Protection

45	APC	88-89

Printers/Plotters

-	Canon Computer Systems	2-3
-	Epson America, Inc.	300-301
127	Kyocera Electronics, Inc.	163
-	Okidata	143
124	Tektronix	31

Scanners/Digitizers

-	Logitech	101
250	Umax Technologies	223

Storage/Backup Devices

89	Fujitsu	209
-	Hewlett-Packard Colorado	59
134	LG Electronics U.S.A., Inc.	199
147	Mega Haus Hard Drive	280
161	Nomai	259
175	Plextor	20
209	Seagate	105
-	Sony Electronics	299

Systems

180	NEC PowerMate	178-179

SOFTWARE

Communications/Fax/Modems

-	PointCast	115
-	Qualcomm	106
211	Smith Micro	257

Desktop Mapping

37	DeLorme	87

Graphics

139	Macromedia	91
-	VISIO	183

Management

195	PC America	276

Optical Character Recognition

91	Caere	247

Other

36	Banner Blue	237
-	Gemini	243

Operating Systems

255	V-Communications	22

Software Suites

70	Corel Corporation	151
93	Corel Corporation	218

Reader service number — Page

- Microsoft C2-P1

Statistics

253 SPSS 119

Taxware

- Intuit 233

Utilities

153 MicroHelp 103
196 PowerQuest 230
232 SYNCRONYS SW 28
255 V-Communications 22

Video

211 Smith Micro 257

Windows

153 MicroHelp 103

Word Processing/Aids

70 Corel Corporation 151
93 Corel Corporation 218

MISCELLANEOUS

Books/Periodicals/ Subscriptions

- The Computer Book Club 277

Mail Order

68 Computer Discount Warehouse 120-121
68 Computer Discount Warehouse 272-273
- LA TRADE 275
147 Mega Haus Hard Drive 280
157 Midwest Computer Works 274
169 Midwest Computer Works 278-279
169 Midwest Memory Works 281
- NRI Schools 261
165 PC Connection 270-271
129 PCs Compleat 266-269
231 USA Flex 265

Online Services

172 PCW Online 174
- Prodigy 202-203

Other

51 Compaq Computer Corporation 255A-B
- COMTRAD Industries 236D
188 Seiko Instruments 236A

Training

- NRI Schools 261

Products Featured in Editorial

Get more information—circle the appropriate number on the reader service card.

Add-on Board

711 Cadet, Advanced Digital Systems 239

Business Software

769 Big Business 2.0 for Windows, Big Software 96
768 Business Maestro, Planet 96

CD-ROM Drive

729 CD-58E 8X CD-ROM Drive Kit, Teac 236-M8
727 CSD-880E, Sony 236-M8
730 MultiSpin 6V, NEC 236-M8
728 Plextor 8Plex PX-83CS, Plextor 236-M8
726 Plextor 12Plex, Plextor 236-M8

Communications

758 Procomm Plus for Windows 95, Quarterdeck 86

Desktop Computer

662 Acma P Pro-200 Z Power Series, Acma Computers 192
683 Acma zPower 166V, Acma Computers 204
682 Alaris Puma P166+, Alaris 204
652 Compaq Deskpro Model 5200/1080, Compaq Computer 192
668 Compaq Presario 4402, Compaq Computer 204
703 Compaq Presario 4402, Compaq Computer 234
654 Cyrix 6x86 P200+, Cyrix 192
665 Dell Dimension P133v, Dell Computer 204
702 Dell Dimension P200v, Dell Computer 234
649 Dell Dimension XPS P200s, Dell Computer 192
646 Dell Dimension XPS Pro200n, Dell Computer 192
666 Dell OptiPlex GXMT 5133, Dell Computer 204
650 Dell OptiPlex GXMT 5200, Dell Computer 192
647 Dell OptiPlex GXpro 200, Dell Computer 192
678 Diamond Technologies P133, Diamond Technologies 204
676 DirectWave Blue Thunder P133 MVP Pro, DirectWave 204
672 DTK Quin-55M/P133, DTK 204
663 DTK Quin-55M/P200, DTK 192
679 First Computer FCS P-133, First Computer 204
671 Gateway 2000 G6-180, Gateway 2000 204
651 Gateway 2000 G6-200, Gateway 2000 192
667 Gateway 2000 P5-133, Gateway 2000 204
656 HP Vectra 500 Model 515MCx 5/166, Hewlett-Packard 192
670 HP Vectra VE 5/133, Hewlett-Packard 204
657 HP Vectra VL4 5/200MT, Hewlett-Packard 192
673 HP Vectra XM5/120 Series 4, Hewlett-Packard 204
653 HP Pavilion 7285, Hewlett-Packard 192
- IBM Aptiva S66, IBM 82
- IBM PC 350 P200, IBM 192
675 Micro Express MicroFlex PCI/5133, Micro Express 204
704 Micron Home MPC, Micron Electronics 234
664 Micron Millennia P133, Micron Electronics 204
645 Micron Millennia P166, Micron Electronics 192
648 Micron Millennia Pro200 Plus, Micron Electronics 192
681 Netis C166-PDS, Netis 204
677 Netis N5100 Media, Netis 204
659 Netis N6200PCI, Netis 192
706 Nexar 9000, Nexar 234
674 ProGen Discover MPEG II P150, ProGen 204
669 Quantex QP5/100 M-3, Quantex Microsystems 204
655 Quantex QP5 200 M4, Quantex Microsystems 192
680 Robotech Cobra XLT P-133, Robotech 204
658 Sys Technology Performance Pro 200, Sys Technology 192
661 Tangent TC6200, Tangent Computer 192
660 ZDS Z-Station GT 500, Zenith Data Systems 192

Desktop Publishing

709 PrintMaster Gold 3.0, Mindscape Software 239
710 PrintShop Ensemble III, Broderbund Software 239

Display

613 Continental DigiView 1709D, Continental 233
617 Dell UltraScan D1726T-HS, Dell 233
- IBM P70, IBM 233
611 Iiyama Vision Master Pro 17, Iiyama 233
615 Packard Bell 3020SL, Packard Bell 233
612 Panasonic PanaSync S17, Panasonic 233
614 Princeton Graphic Ultra 17+, Princeton 233
618 Samsung SyncMaster 17GLsi, Samsung 233
764 ViewSonic P815, ViewSonic 92
616 ViewSonic PT770, ViewSonic 233
619 Wyse Technologies WY-17PS, Wyse 233

Entertainment

712 Eyewitness Virtual Reality Dinosaur Hunter, DK Multimedia 240

Fax-Modem

792 Diamond Multimedia SupraSonic 336+ Voice Faxmodem, Diamond Multimedia 229
789 Hayes Optima 28.8 Business Modem Voice/ Data/Fax, Hayes Microcomputer Products 229
793 Megahertz XJ4288, Megahertz 229
790 Motorola ISG Premier 33.6, Motorola 229
794 Practical Peripherals ProClass 288 V.34 Data/ Fax Modem with EZ-Port, Practical Peripherals 229
795 TDK CyberExpress 3000, TDK 229
788 U.S. Robotics Courier V.Everything 33.6, U.S. Robotics 229
791 U.S. Robotics Sportster 28.8 Data/Fax Modem, U.S. Robotics 229
797 U.S. Robotics Sportster PC Card Faxmodem with DataView Connector, U.S. Robotics 229
796 Zoom PCMCIA V.34C Plus Model 2870, Zoom 229

Financial Software

731 Kiplinger's Tax Cut, Block Financial 152
732 Managing Your Money, MECA 152
733 Microsoft Money, Microsoft 152
734 Principia Plus, Morningstar 152
- Quicken, Intuit 152
- Quicken Financial Planner 1.0, Intuit 152
- TurboTax, Intuit 152
735 Value Line Investment Survey for Windows, Value Line 152
736 Vanguard Retirement Planner 3.0, Retirement Manager 1.0, The Vanguard Group 152
737 WillMaker, Nolo Press 152

Game

811 7th Legion, Jazz Jackrabbit II, Unreal, Epic MegaGames 52
785 9, GT Interactive 236-M7
782 Clandestiny, Trilobyte 236-M5
813 Eraser-Turnabout, Imagination Pilots 52
784 Lighthouse: The Dark Being, Sierra 236-M6

Reader service number — Page

781 MechWarrior 2: Mercenaries, Activision 236-M5
783 Mummy: Tomb of the Pharaoh, Interplay .. 236-M6
708 The Neverhood, DreamWorks Interactive 239
816 Pod, Ubi Soft 52
812 Rebel Moon Rising, Fenris Wolf 52
814 Space Station Simulator, Maris Multimedia 52

Graphics
636 3D F/X 2.0, Asymetrix ... 164
642 ABC Graphics Suite 95, Micrografx 162
806 Adobe Photoshop, PhotoDeluxe, Adobe 52
636 ASAP WordPower 1.95, Software Publishing 164
807 Asymetric, 3D/FX 52
771 Bryce 2 for Windows 95/NT, MetaTools 100
772 CorelDraw 7, Corel 100
643 Corel Graphics Pack, CorelDraw 7, Corel 162
639 Corel.Web.Gallery, Corel 166
630 Dabbler 2, Fractal Design 160
– Detailer 1.0, Fractal Design 100
635 FutureWave Software, SmartSketch 95 162
756 HiJaak 95, Quarterdeck 86
631 Kai's Power Goo, MetaTools 161
757 Persuasion 4.0, Adobe 86
632 PhotoDeluxe 1.0, Adobe Systems 161
641 PhotoDisc Digital Stock Photography, PhotoDisk 166
633 PhotoImpact 3.01 with WebExtension, Ulead Systems 161
634 Poser, Fractal Designs 161
637 Visio 4.0, Visio 164

Graphics Board
744 ATI 3D Xpression PC2TV, ATI 235
750 Diamond Stealth 3D 2000XL, Diamond Multimedia 235
751 Hercules Dynamite 128/Video, Hercules 235
748 Hercules Terminator 3D, Hercules 235
753 Jazz G-Force/128, Jazz ... 235
749 Matrox Millennium, Matrox 235
745 Matrox Mystique, Matrox 235
752 Orchid Fahrenheit Video 3D, Orchid 235
746 STB Lightspeed 128, STB 235
747 Videologic GrafixStar 600, Videologic 235

Groupware
725 FirstClass, SoftArc 118

Reader service number — Page

723 OpenMind 3.0, Attachmate 114

HTML Tool
778 HTML Transit 2.0, InfoAccess 104

Input Device
763 Cirque Input Center, Cirque 92

Intranet Tool
724 AltaVista Forum, Digital Equipment Corp. 118

ISDN
707 FasTrak Home ISDN, Pacific Bell 244

Miscellaneous Hardware
644 RealMagic Maxima, Sigma Designs 262

MPEG Player
815 Mediamatics PureSpeech, MPEG Player 52

Multifunction Device
754 HP LaserJet 5Si Mopier, Hewlett-Packard 83

Notebook Computer
692 Acer AcerNote Light 356, Acer America 212
696 AST Ascentia J30, AST Computer 212
699 Broadax NP8662D, Broadax 212
700 Canon Innova Book 360CD, Canon Computer 212
690 Compaq Armada 4120T, Compaq Computer 212
687 Compaq LTE 5250, Compaq Computer 212
684 Dell Latitude LM P133ST, Dell Computer 212
685 Dell Latitude XPi P133ST, Dell Computer 212
693 Digital HiNote VP, Digital Equipment Corp. 212
701 DTK DTN-5A120C, DTK 212
– Eurocom 6200 Super-Notebook, Eurocom 51
697 Fujitsu Montego, Fujitsu PC 212
686 Gateway 2000 Solo 2100 P-133, Gateway 2000 212
– IBM ThinkPad 365X and XD, 760E and ED, IBM 84
– IBM ThinkPad 560 P100, IBM 212
– IBM ThinkPad 760E, IBM 212
688 NEC Versa 6030H, NEC Technologies 212
695 Sharp PC 3030, Sharp Electronics 212
698 Toshiba Satellite 110CT, Toshiba America Information Systems 212
755 Toshiba Satellite, Portégé and Tecra Notes, Toshiba America Information Systems 84

Reader service number — Page

689 Toshiba Satellite Pro 410CDT, Toshiba America Information Systems 212
694 Toshiba Satellite Pro 420CDS, Toshiba America Information Systems 212
691 Toshiba Tecra 720CDT, Toshiba America Information Systems 212

Online Service
– America Online, America Online 51

Operating System
786 Windows 95, Microsoft Corp. 132
787 Windows NT, Microsoft Corp. 132

Printer
629 HP Color LaserJet 5M, Hewlett-Packard 221
625 HP DeskJet 1600CM, Hewlett-Packard 221
623 HP LaserJet 5M, Hewlett-Packard 221
– IBM Network Printer 12, IBM 221
621 Lexmark Optra Lx+, Lexmark 221
622 Lexmark Optra R+, Lexmark 221
624 OL1200/PS, Okidata 221
626 Tektronix Phaser 350, Tektronix 221
628 Tektronix Phaser 550, Tektronix 221
627 Xerox XPrint 4920 Plus, Xerox 221

Project Management
759 DecideRight 1.2 for Windows 95, Avantos 90
761 Microsoft Team Manager 97, Microsoft 90
760 SureFire for Windows 95, Beacon Rock 90

Reference
808 Books That Work, Visual Home 52
713 College Advisor '97 Edition, Inside the SAT and ACT '97 Edition, The Princeton Review ... 240
714 Corel's All-Movie Guide 2, Corel 240
809 Timetables of Technology, Byron Preiss Multimedia .. 52
810 Ultimate Human Body, Dorling Kindersley 52

Scanner
719 HP ScanJet 4P, Hewlett-Packard 182
715 Logitech PageScan Color, Logitech 180
720 Microtek ScanMaker E3, Microtek 182
721 Plustek OpticPro 4800P, Plustek 182
716 Storm Technology EasyPhoto SmartPage, Storm Technology 180
717 Umax PageOffice Color, Umax 180

Reader service number — Page

722 Umax Vista S6E, Umax 184
718 Visioneer PaperPort Vx (3), Visioneer 182

Server
609 ALR Revolution, ALR 108
603 Compaq ProLiant 1500 5/133 2100, Compaq Computer 108
608 Compaq ProLiant 5000 6/200, Compaq Computer 108
604 Digital Prioris XL 5133, Digital Equipment Company 108
602 Digital Prioris ZX 5166, Digital Equipment Company 108
605 HP NetServer 5/133 LH, Hewlett-Packard 108
601 HP NetServer LH Pro, Hewlett-Packard 108
606 HP NetServer LS4 5/166, Hewlett-Packard 108
607 HP NetServer LX Pro 6/200 SMP, Hewlett-Packard 108
– IBM PC Server, IBM 108

Sound Board
743 CrystaLake Model 110, CrystaLake 236-M8
740 NuSound PnP 32, Orchid 236-M8
741 Sound Blaster 32, Creative Labs 236-M8
739 Soundscape Vivo 90, Ensoniq 236-M8
742 WaveRider Pro32-3D PnP, Aztech 236-M8

Telephone Directory
762 Select Phone Deluxe, Pro CD 92

Travel
773 Compass 3800, Chicago Map 102

Utility
779 ESP, Hayes Microcomputer Products 260
802 First Aid 97, Oil Change, CyberMedia 54
777 Internet Music Kit, Wildcat Canyon Software 104
805 MagnaRAM 97, Quarterdeck 55
765 Norton Utilities, Symantec 94
803 PC Handyman, Symantec 54
774 PointCast Network 1.1, PointCast 102
– Portinfo 4.0, Computer Telecommunications Systems 260
766 ProZip, RT Computer 94
780 TurboExpress, Pacific Commware 260
767 UnInstaller 4, MicroHelp 94
804 WebPatch, NetSynch 54
– WinZip 6.2, WinZip 51

Larry Bowdish, Publishing Executive, 37; Of Massive Hard Drive Failure

By SIMON BOWDEN

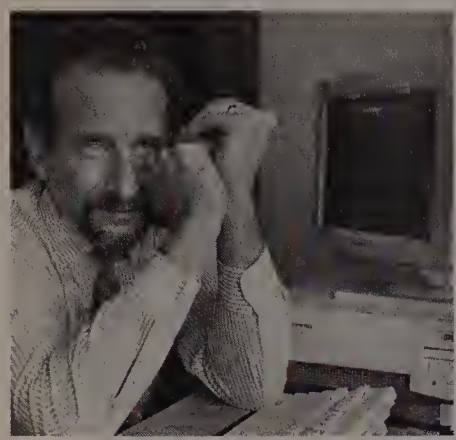
He was the envy of the textbook publishing crowd. The bad boy of the scholastic set. Witty, urbane, and outspoken, Larry Bowdish lit up a sleepy industry with his meteoric rise to the top, but the ride ended suddenly late last night, when he suffered a devastating system collapse during final manuscript edits.

Mr. Bowdish's sudden demise came as a shock to friends, who recalled a man known for his boundless energy and enthusiasm.

"One minute you've got the world by the tail and the next...you've been erased."

"Naturally, we're all a little stunned," said Information Services Director David B. Cohen, "after all, we do encourage employees to save their work every chance they get." Said another colleague, "It's so unfair. I mean, one minute you've got the world by the tail and the next, you've been erased."

Officials have since traced the system collapse, reconstructing Bowdish's last hours and desperate attempts at retrieval. It now appears Mr. Bowdish was downloading from corporate archives onto his workstation, and periodically dumping onto floppy disks. "People can use floppies as backups, but there's an obviously limited capacity. Besides, Bowdish was making changes straight onto the disks without keeping track of his



Larry Bowdish

changes. So, searching for lost data becomes a moot point," explained Cohen.

Mr. Bowdish, who had no known history of hard drive failure, leaves no surviving software. In lieu of flowers, the family kindly requests all leads and reasonable job offers be forwarded to the home address.

Mysterious DOS Virus Claims Famous Accountant

By SIMON BOWDEN

Stephen Cunningham, known affectionately in accounting circles as the Bulldog of Due Diligence, was found not at his desk yesterday morning.

His untimely exit from Simon Co. coincided with the discovery of corrupted files on the largest merger and acquisition project in the history of the firm. It wasn't known whether the data disappearance alone caused Cunningham's sudden departure. However sources revealed that the ex-Senior Vice President's lengthy battle with a mysterious DOS virus was well documented within the firm.

"The Tech Support guys were down here all the time," said long-time assistant Jane Deery. "Steve was always getting these weird system bombs, it was bizarre. But he had an amazing memory and was usually able to re-create whatever was lost."

Stephen Cunningham

Since the information was so important, it's a mystery why the departed didn't back up his hard drive.

Ms. Deery added Mr. Cunningham declined a traditional going away party, wishing instead to "just get on with things."

Nancy Conaty, 34, Accidentally Trashed by Four-year-old Son

By SIMON BOWDEN

Mrs. Nancy Conaty was sole proprietor of an executive search firm run out of the home. The end came in a tragic family accident late Thursday afternoon. Mrs. Conaty had apparently walked into the kitchen to check on a pot roast when son Joey dragged her unsaved document into the trash, then pounded unknown commands on the keyboard.

The computer was rushed to a neighborhood computer store where specialists struggled frantically for several hours to retrieve the lost work. Their attempts were in vain, as the damage was much too widespread. "Had this occurred with a safe backup in place, no big deal," the store manager shrugged. "But there's very little we can do in a case like this."

ADVERTISEMENT

So much to lose,

so little to pay!

Protect your livelihood.
Protect your future.
While you still have one!

All just $199.95*
A small price to pay for peace of mind.

the new
SONY
StorStation™
Drive
only
$199.95
complete

- Massive 2 gigabyte capacity for hard drive backup.
- Sony quality and Internet access to boot, with free Sprynet® software with Netscape Navigator® included.
- Free Sony QW2GB tape cartridge.

SONY

* suggested retail price

©1996 Sony Electronics Inc. Reproduction in whole or in part without written permission is prohibited. All rights reserved. Sony, StorStation and the S logo are trademarks of Sony. Travan is a trademark of 3M. Ditto is a trademark of Iomega Corporation. All other trademarks are trademarks of their respective owner.

to really appreciate how state-of-the-art it is, just look at the art

EPSON STYLUS COLOR 500

Black and color on premium paper	720 x 720 dpi
Black and color on plain paper	720 x 360 dpi

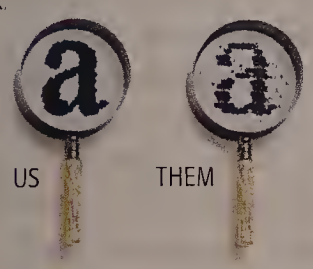
Now for only $289.00

CALL 1 800 GO EPSON
ASK FOR OPERATOR 3064

www.epson.com

Piezoelectric Technology

Unlike thermal printing, our patented technology provides a cleaner, more consistent dot with no splatter for sharper printing. Just look.



What comes out of the critically acclaimed EPSON Stylus Color 500 isn't just a document. It's your ideas in their most vivid and inspiring form. Made possible by Epson's Piezoelectric technology—our patented method of getting ink onto paper. Unlike thermal printing where the ink is heated until it splatters, our exclusive technology uses an electronic pulse to force ink through the printhead with precision. You'll appreciate the results—dots that are cleaner and more consistent. 720 x 720 dpi PQ Photo Quality images for accurate color, detail and less graininess. And laser-quality black text. (All at print speeds faster than you ever imagined.) It adds up to a stunning output. Or the difference between presenting an idea and unveiling a masterpiece.

YOU'VE GOT TO SEE IT IN EPSON COLOR.™

The "a" character comparison is based on actual print samples from the EPSON Stylus Color 500 and the leading ink jet competitor printed on premium paper. Street price may vary. EPSON and EPSON Stylus are registered trademarks of Seiko Epson Corp. © 1996 Epson America, Inc.

Let 'em Eat Tech Support!

I'M TICKED. I'm steamed. And in case you haven't noticed, I'm really, really angry. I just wasted 6 hours over the last two days trying to get my Windows 95 machine to do one simple thing it had suddenly stopped doing—play MIDI files. Once again I'm bitterly reminded why all the money we spend on computers never seems to translate into measurable gains in productivity.

Misery loves company. Last week a friend of mine lost a couple of working days trying to get his Windows 95 machine to boot in anything but Safe Mode. His crime? He installed a kids' program that did something awful to his video drivers. He finally decided the easiest solution was to reformat the hard drive and start over.

Installing new hardware and software fouls up Windows systems routinely in ways small, big, and catastrophic. A single device driver in the wrong place, a misguided line in the registry, and your PC, or some aspect of it, is toast.

Many problems are time bombs, lurking silently until the moment when another program calls some obscure function that got obliterated months ago. Even with savvy assistance, the likelihood of figuring out what went wrong can approach the chance of your being hit by a meteor the size of Bill Gates's new house.

One **misplaced** device driver, one misguided line in the **Windows 95** registry, and your system is **toast.**

If anything, Windows 95 has made things worse, not better. Now not only do INI and driver files still cause trouble, but there's a whole dark registry of system settings that almost no one understands. Are you aware that some programs sneakily use the registry to install software that runs when you boot your machine? The only way you're likely to notice is to hit <Ctrl>-<Alt>-<Delete> (once only, please) and observe the strange items at the bottom of the Close Program list.

I found three such programs in my machine, but they weren't the reason my MIDI audio suddenly stopped working. Every time a program tried to call MIDI, a message popped up insisting that some other program was already using the driver.

I don't use MIDI all that often, and I quickly determined that the message simply wasn't true. But just to be safe, I eliminated sound card support, rebooted, reinstalled all the drivers, and rebooted again. It didn't help. Neither did the newer drivers I downloaded from the Web.

The obvious suspects were two multimedia programs I'd recently installed, but their tech wizards insisted the programs couldn't be at fault. Finally a Microsoft guru spent 3 hours on the phone with me, helping me hunt down MIDI references in the INI files and the registry and reinstall every scrap of software that might lead to a solution. No dice. The guru hinted that even reinstalling Windows 95 itself might not do the trick unless I reformatted the drive first.

A minute away from hanging up and throwing the machine out the, uh, window, I attempted one last desperate hunt through the registry. Somehow I stumbled upon the cryptic term 'OldMapper' pointing to 'midimap.drv' and connected with a lousy piece of software I'd installed six months before. Hmmmm. Had that software installed its own MIDI driver and dumped 'midimap.drv', the standard file?

It had indeed. The problem resolved as if by magic as soon as I changed a single file name in a different registry entry—the charmingly named MyComputer\HKEY_LOCAL_MACHINE\System\CurrentControlSet\control\MediaResources\mapper\midimapper. Hey, if the guru and I can do it, you can, too!

We desperately need a system that can protect itself from pillage and plunder. System files should have clearly identifiable version numbers, dates, and descriptions and shouldn't be overwritten by apps except with your permission. When you install updates, the original files should be compressed and retained so you can restore them. Changes to system files and the registry should be logged in detail, with instructions on how to reverse them.

And it'll never happen. Hey, that would just be too complicated for novices. Let 'em view installing a new program with the proper fear and respect! Let 'em think these problems are somehow their fault! Let 'em eat tech support!

PC World *contributing editor Stephen Manes is a columnist for the* New York Times *and coauthor of* Gates: How Microsoft's Mogul Reinvented an Industry *(Touchstone/Simon & Schuster, 1994, 800/223-2348).* ■

IDG INTERNATIONAL DATA GROUP

PC World™ (ISSN 0737-8939) is published monthly at $29.90 for one year (12 issues), $59.80 for two years (24 issues), $89.70 for three years (36 issues) by PC World Communications, Inc., 501 Second St. #600, San Francisco, CA 94107. Foreign orders must be prepaid in U.S. funds with additional postage. Add $20 per year for Canada and Mexico; add $46 per year for airmail for all other countries. Canadian GST Registration #R124669680. Periodicals postage paid at San Francisco and additional mailing offices. Canada Post International Publications Mail Product, (Canadian Distribution) Sales Agreement No. 0463566. POSTMASTER: Send address changes to PC World, Subscription Dept., P.O. Box 55029, Boulder, CO 80322-5029. Editorial and business offices: 501 Second St. #600, San Francisco, CA 94107, 415/243-0500. Copyright © 1997, PC World Communications, Inc. All rights reserved. The trademark PC World is owned by International Data Group and used under license by PC World Communications, Inc. PC World Top 20™, Top 20™, PC World Top 10™, Top 10™, PC World Top 100™, Top 100™, and Consumer Watch™ are trademarks of International Data Group, Inc., and used under license by PC World Communications, Inc. Printed in the United States.

PHOTOGRAPH: ERIK BUTLER

WE'RE MAKING A LIST, CHECKING I
GONNA MAKE SURE YOU CAN'T BE

200MHz PENTIUM® PRO PROCESSOR
DELL DIMENSION™ XPS Pro200n

- 64MB EDO Memory with ECC
- 256KB Internal L2 Cache
- *NEW* 4.3GB Hard Drive [9.5ms]
- 20TD Trinitron® Monitor (19.0" v.i.s., .26dp, 1600 x 1200 max. res.)
- Matrox Millennium 4MB WRAM Video Card
- *NEW* 12X EIDE CD-ROM Drive
- 1.6GB/3.2GB Travan Tape Backup
- MS® Office 95 Professional with Bookshelf
- MS Office 97, Professional Edition Upgrade Coupon††
- Microsoft® Windows NT® Workstation 4.0/30 Days Free Support/MS Mouse
- 3 Year Limited Warranty† with 1 Year On-site△ Service
- ★ *Upgrade to a 2GB SCSI UW Hard Drive (7200RPM, 8ms), Adaptec 2940UW Controller and 8X SCSI CD-ROM, add $320.*

$3999
Business Lease◊: $144/Mo.
Order Code #501210

200MHz PENTIUM PRO PROCESSOR
DELL DIMENSION XPS Pro200n

- 32MB EDO Memory with ECC
- 256KB Internal L2 Cache
- 2GB SCSI UW Hard Drive [7200RPM, 8ms]
- Adaptec 2940UW Controller Card
- 17LS Monitor (15.7" v.i.s.)
- Matrox Millennium 4MB WRAM Video Card
- *NEW* 8X SCSI CD-ROM Drive
- MS Office 95 Professional with Bookshelf
- MS Office 97, Professional Edition Upgrade Coupon
- Microsoft Windows 95/MS Plus! CD/ 30 Days Free Support/MS Mouse
- 3 Year Limited Warranty with 1 Year On-site Service
- ★ *Upgrade to 64MB EDO Memory with ECC, add $295.*
- ★ *Upgrade to a 4GB SCSI UW Hard Drive (7200RPM, 8ms), add $275.*

$2999
Business Lease: $111/Mo.
Order Code #501209

200MHz PENTIUM PROCESSOR
DELL DIMENSION XPS P200s

- 64MB SDRAM Memory
- 512KB Pipeline Burst Cache
- 3.2 GB Hard Drive [9.5ms]
- 17HS Trinitron Monitor (15.9" v.i.s., .26dp)
- Matrox Millennium 4MB WRAM Video Card
- *NEW* 12X EIDE CD-ROM Drive
- AWE32 Wave Table Upgrade Card
- Altec ACS-490 Full Dolby Surround Sound Speakers with Subwoofer
- 33.6 U.S. Robotics Telephony Modem
- MS Office 95 Professional with Bookshelf
- MS Office 97, Professional Edition Upgrade Coupon
- FREE Norton/Visio Express S/W Suite**
- Microsoft Windows 95/MS Plus! CD/ 30 Days Free Support/MS Mouse
- 3 Year Limited Warranty with 1 Year On-site Service

$3399
Business Lease: $126/Mo.
Order Code #501206

200MHz PENTIUM P
DELL DIMENSION XP

- 32MB SDRAM Memo
- 512KB Pipeline Burs
- 3.2GB Hard Drive [9.
- 17HS Trinitron Moni
- Matrox Millennium
- *NEW* 12X EIDE CD-R
- AWE32 Wave Table
- Altec ACS-290 Speak
- MS Office 95 Profes
- MS Office 97, Profe Upgrade Coupon
- FREE Norton/Visio E
- Microsoft Window 30 Days Free Suppo
- 3 Year Limited Warr On-site Service
- ★ *Upgrade to a 4.3GB add $55.*

$289
Business Lease: $107
Order Code #501205

200MHz PENTIUM PROCESSOR
DELL DIMENSION XPS P200s

- 32MB SDRAM Memory
- 512KB Pipeline Burst Cache
- 3.2GB Hard Drive [9.5ms]
- 17LS Monitor (15.7" v.i.s.)
- Matrox Millennium 4MB WRAM Video Card
- *NEW* 12X EIDE CD-ROM Drive
- Integrated Sound Blaster 16 Sound
- Altec ACS-90 Speakers
- MS Office 95 Professional with Bookshelf
- MS Office 97, Professional Edition Upgrade Coupon
- FREE Norton/Visio Express S/W Suite
- Microsoft Windows 95/MS Plus! CD/ 30 Days Free Support/MS Mouse
- 3 Year Limited Warranty with 1 Year On-site Service

$2599
Business Lease: $96/Mo.
Order Code #501204

166MHz PENTIUM PROCESSOR
DELL DIMENSION XPS P166s

- 32MB SDRAM Memory
- 512KB Pipeline Burst Cache
- 3.2GB Hard Drive [9.5ms]
- *NEW* 800HS Trinitron Monitor (13.7" v.i.s.)
- Matrox Millennium 4MB WRAM Video Card
- *NEW* 12X EIDE CD-ROM Drive
- AWE32 Wave Table Upgrade Card
- Altec ACS-90 Speakers
- MS Office 95 Professional with Bookshelf
- MS Office 97, Professional Edition Upgrade Coupon
- FREE Norton/Visio Express S/W Suite
- Microsoft Windows 95/MS Plus! CD/ 30 Days Free Support/MS Mouse
- 3 Year Limited Warranty with 1 Year On-site Service

$2399
Business Lease: $89/Mo.
Order Code #501203

200MHz PENTIUM PROCESSOR
DELL DIMENSION P200v

- 16MB SDRAM Memory
- 256KB Pipeline Burst Cache
- 2.1GB Hard Drive [12ms]
- *NEW* 800HS Trinitron Monitor (13.7" v.i.s.)
- 64-bit PCI 2MB DRAM Video
- *NEW* 12X EIDE CD-ROM Drive
- Microsoft Windows 95/MS Plus! CD/ 30 Days Free Support/Dell Mouse
- 3 Year Limited Warranty with 1 Year On-site Service
- ★ *Upgrade to 32MB SDRAM, add $139.*
- ★ *Upgrade to a 3.2GB Hard Drive (10.5ms), add $79.*
- ★ *Upgrade to a 17LS Monitor (15.7" v.i.s.), add $175.*
- ★ *Upgrade to 512KB Pipeline Burst Cache, add $25.*

$1999
Business Lease: $74/Mo.
Order Code #501202

166MHz PENTIUM P
DELL DIMENSION P1

- 16MB SDRAM Mem
- 256KB Pipeline Burs
- 2.1GB Hard Drive [12
- 15LS Monitor (13.7"
- 64-bit PCI 2MB DRA
- *NEW* 12X EIDE CD-R
- Microsoft Windows 30 Days Free Suppor
- 3 Year Limited Warr site Service
- ★ *Upgrade to 32MB S*
- ★ *3Com® EtherLink® I Card, add $135.*
- ★ *Sound Blaster 16 P Altec ACS-90 Speak*
- ★ *Upgrade to 3 Years Service, add $99.*

$179
Business Lease: $67/
Order Code #501201

FREE Norton/Visio Express Software Suite includes Norton AntiVirus, Navigator and Utilities, and Visio Express 4.0.

‡Non-discountable promotional pricing. †For a complete copy of our Guarantees or Limited Warranties, please write Dell USA L.P., 2214 W. Braker Lane, Suite O, Austin, TX 78758. ††For a limited time (with qualifying purchase), receive a coupon for a fr Edition upgrade on CD after release from Microsoft. Call for details. ◊Business leasing arranged by Leasing Group, Inc. **Norton/Visio Express Software Suite is available only on Dell Dimension systems purchased with the combination of MS Office an Express 4.0 is an OEM version and a subset of Visio 4.0. Software may not include all documentation and may differ from retail version. *System weight with floppy drive in options bay. △On-site service provided by BancTec Service Corporation. On-site certain remote locations. ˇOn-site service for the Poweredge 2100 Server is provided by Digital Equipment Corporation and is available in 29 metropolitan areas. ★Prices and specifications valid in the U.S. only and subject to change without notice. The In registered trademarks and the Intel LANDesk logo is a trademark of Intel Corporation. MS, Microsoft, Windows and Windows NT are registered trademarks of Microsoft Corporation. XJACK is a registered trademark of US Robotics Mobile C mmuni EtherLink are registered trademarks of 3Com Corporation. Trinitron is a registered trademark of Sony Corporation. ©1996 Dell Computer Corporation. All rights reserved.

IT TWICE.
AT OUR PRICE.

ROCESSOR
S P200s

- ry
- Cache
- ms]
- or (15.9" v.i.s., .26dp)
- MB WRAM Video Card
- M Drive
- Upgrade Card
- rs with Subwoofer
- ional with Bookshelf
- sional Edition

- xpress S/W Suite
- 95/MS Plus! CD/
- t/MS Mouse
- nty with 1 Year

Hard Drive (9.5ms),

9
Mo.

OCESSOR
66v

- ry
- Cache
- ms]
- .i.s.)
- M Video
- DM Drive
- 95/MS Plus! CD/
- t/Dell Mouse
- nty with 1 Year On-

RAM, add $139.
terface Combo PCI

Sound Card and
rs, add $89.
f On-site

0
lo.

e MS Office 97, Professional
Microsoft Windows 95 Visio
erv e may not be available in
l In ide logo and Pentium are
tio s Corporation 3Com and

133MHz PENTIUM PROCESSOR
DELL LATITUDE® LM P133ST

- 12.1" SVGA Active Matrix Color Display
- 40MB RAM/1.3GB Hard Drive
- 256KB L2 Cache
- Options Bay accepts 6X CD-ROM, 3.5" Floppy Drive (both included) or Optional 2nd Li-Ion Battery
- PCI Bus with 128-bit Graphics Accelerator
- Integrated 16-bit Stereo Sound
- Smart Lithium Ion Battery
- IrDA 1.0 Standard Compliant
- Touchpad
- MS Office Pro for Windows 95
- 28.8 XJACK®/Cabled Modem
- Leather Carrying Case
- Under 7 Pounds*
- Extendable 1 Year Warranty†

$3999‡
Business Lease: $144/Mo.
Order Code #800060

133MHz PENTIUM PROCESSOR
DELL LATITUDE LM P133ST

- 12.1" SVGA Active Matrix Color Display
- 16MB RAM/810MB Hard Drive
- 256KB L2 Cache
- Options Bay accepts 6X CD-ROM, 3.5" Floppy Drive (both included) or Optional 2nd Li-Ion Battery
- PCI Bus with 128-bit Graphics Accelerator
- Integrated 16-bit Stereo Sound
- Smart Lithium Ion Battery
- IrDA 1.0 Standard Compliant
- Touchpad
- Under 7 Pounds*
- Extendable 1 Year Warranty
- ★ *Upgrade to 40MB RAM, add $299.*
- ★ *Dell Latitude LM Port Replicator, add $159.*

$2999‡
Business Lease: $111/Mo.
Order Code #800051

100MHz PENTIUM PROCESSOR
DELL LATITUDE LM P100SD

- 11.3" SVGA Dual Scan Color Display
- 40MB RAM/1.3GB Hard Drive
- 256KB L2 Cache
- Options Bay accepts 6X CD-ROM, 3.5" Floppy Drive (both included) or Optional 2nd Li-Ion Battery
- PCI Bus with 128-bit Graphics Accelerator
- Integrated 16-bit Stereo Sound
- Smart Lithium Ion Battery
- IrDA 1.0 Standard Compliant
- Touchpad
- MS Office Pro for Windows 95
- Nylon Carrying Case
- Under 7 Pounds*
- Extendable 1 Year Warranty
- ★ *28.8XJACK/Cabled Modem, add $239.*

$2899‡
Business Lease: $107/Mo.
Order Code #800071

100MHz PENTIUM PROCESSOR
DELL LATITUDE LM P100SD

- 11.3" SVGA Dual Scan Color Display
- 24MB RAM/1.3GB Hard Drive
- 256KB L2 Cache
- Options Bay accepts 6X CD-ROM, 3.5" Floppy Drive (both included) or Optional 2nd Li-Ion Battery
- PCI Bus with 128-bit Graphics Accelerator
- Integrated 16-bit Stereo Sound
- Smart Lithium Ion Battery
- IrDA 1.0 Standard Compliant
- Touchpad
- 28.8 XJACK®/Cabled Modem
- Nylon Carrying Case
- Under 7 Pounds*
- Extendable 1 Year Warranty

$2599‡
Business Lease: $96/Mo.
Order Code #800072

200MHz PENTIUM PRO PROCESSOR
DELL POWEREDGE® 2100 SERVER

- *NEW* Pentium Pro Server
- 32MB Error Correcting Code (ECC) EDO Memory (512MB Max)
- 256KB Integrated L2 Cache
- Integrated PCI Ultra/Wide SCSI-3 Controller
- 2GB Fast/Wide SCSI-2 Hard Drive [7200RPM, 8ms] (12GB Max)
- 8X SCSI CD-ROM Drive
- 3Com 10/100 PCI Ethernet Adapter
- Intel® LANDesk™ Server Manager v2.5
- 6 Expansion Slots: 3 PCI, 3 EISA
- 6 Drive Bays: 3 External 5.25"/3 Internal 3.5"
- 3 Year Warranty† with 1 Year Next-Business-Day, On-site˘ Service
- 7 x 24 Dedicated Server Hardware Tech Support
- ★ *Microsoft Windows NT Server 4.0 (10 Client Access Licenses) included at no extra charge through 12/31/96.*
- ★ *Upgrade to 64MB ECC EDO memory, add $649.*
- ★ *Upgrade to a 4GB Fast/Wide SCSI-2 hard drive, add $459.*

$3999‡
Business Lease: $144/Mo.
Order Code #250022

- Pentium Pro Chip-based Server
- Pentium Pro Chip-based Mini-Towers
- Pentium Chip-based Mini-Towers
- Pentium Chip-based Notebooks

TO ORDER
800-624-6136
http://www.dell.com/buydell

Mon-Fri 7am-9pm CT • Sat 10am-6pm CT
Sun 12pm-5pm In Canada, call 800-232-6978

Keycode #03214

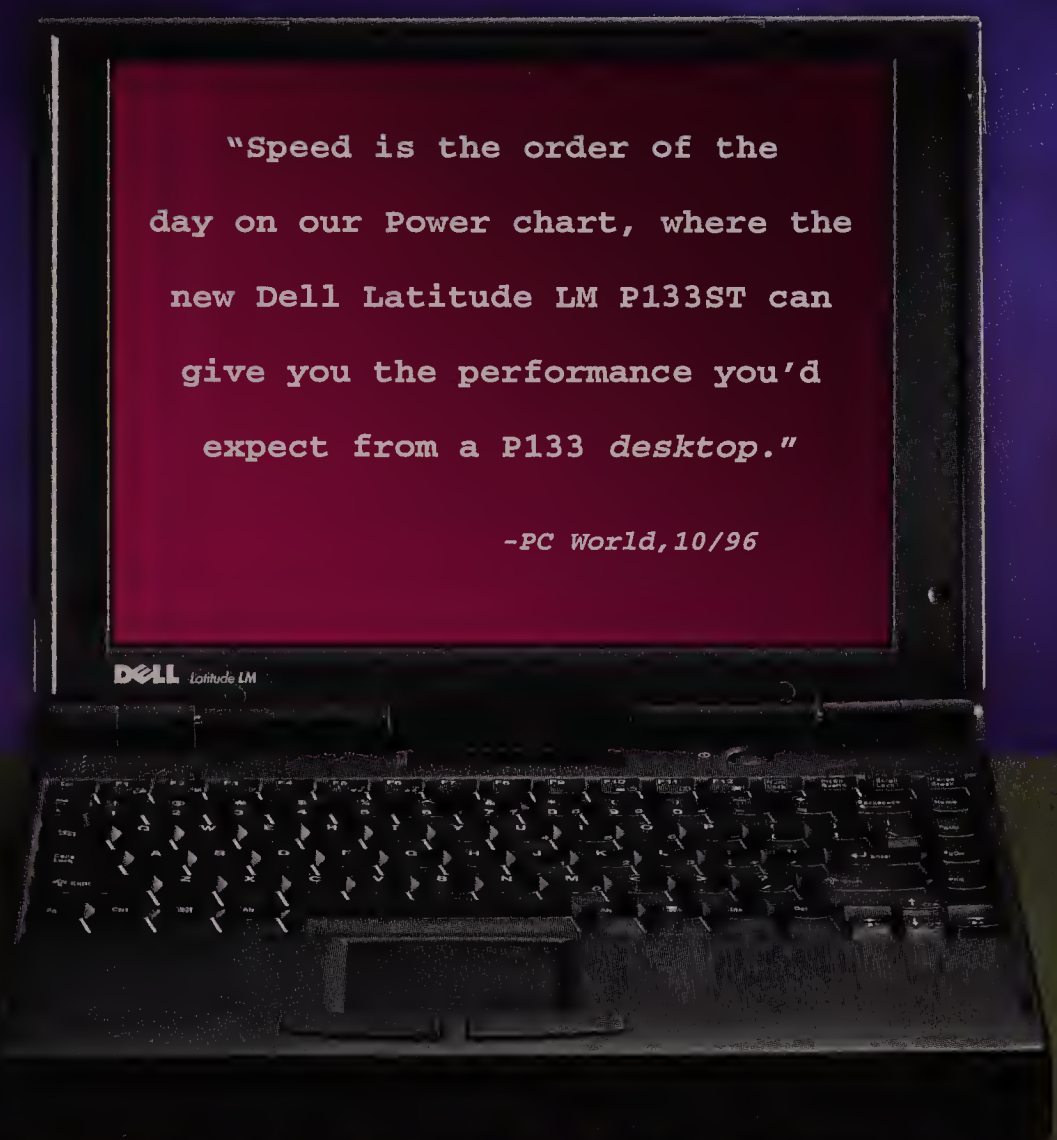
DELL® LATITUDE® LM P133ST
133MHz PENTIUM® PROCESSOR

- ★ **12.1" SVGA Active Matrix Color Display**
- 16MB RAM/810MB Hard Drive
- 256KB L2 Cache
- Options Bay accepts 6X CD-ROM, 3.5" Floppy Drive (both included) or Optional 2nd Li-Ion Battery
- ★ **PCI Bus with 128-bit Graphics Accelerator**
- Integrated 16-bit Stereo Sound
- Smart Lithium Ion Battery
- IrDA 1.0 Standard Compliant
- Touchpad
- Under 7 Pounds*
- Extendable 1 Year Warranty†
- ★ ***Upgrade to 40MB RAM, add $299.***
- ★ ***28.8 XJACK®/Cabled Modem, add $239.***

Business Lease◊: $111/Mo.
Order Code #800051

PC World
#1 Power Notebook

$2999



ACCORDING TO PC WORLD THIS IS NOT A NOTEBOOK.

The Dell Latitude LM P133ST. It looks like a notebook. Yet it performs like a desktop. Sounds like someone's going to have to start a new category! All thanks to *PC World* who started it when they gave us their Best Buy award and said, "the Dell Latitude LM P133ST is a hands-down Best Buy for users looking for a desktop replacement." A bold statement.

intel inside pentium PROCESSOR

They also said things like it's the "fastest notebook we've ever tested." And "Pros: Large, crisp screen; terrifically fast. Cons: none." And to think they didn't even get to its 128-bit graphics accelerator which gives you amazing graphic abilities that your desktop-laden co-workers will envy.

We could go on and on. They certainly did. But we'll let you get to a phone first.

DELL®

TO ORDER
800-283-0088
http://www.dell.com/buydell

Mon-Fri 7am-9pm CT • Sat 10am-6pm CT
Sun 12pm-5pm In Canada,* call 800-232-6978

Keycode #03208

$2599
With Free Software

DELL DIMENSION™ XPS P200s
200MHz PENTIUM® PROCESSOR

- ★ **32MB SDRAM Memory**
- 512KB Pipeline Burst Cache
- 3.2GB Hard Drive [9.5ms]
- 17LS Monitor (15.7" v.i.s.)
- Matrox Millennium 4MB WRAM Video Card
- ★ ***NEW* 12X EIDE CD-ROM Drive**
- Integrated Sound Blaster 16 Sound
- Altec ACS-90 Speakers
- MS® Office Professional with Bookshelf for Windows® 95
- ★ **MS Office 97, Professional Edition Upgrade Coupon††**
- ★ **FREE Norton/Visio Express Software Suite‡**
- Microsoft® Windows 95/MS Plus! CD/ 30 Days Free Support/MS Mouse
- 3 Year Limited Warranty† with 1 Year On-site Service△
- ★ ***Upgrade to 64MB SDRAM, add $275.***

Business Lease◊: $96/Mo.
Order Code #501204

FREE!
NORTON ANTIVIRUS
NORTON NAVIGATOR
NORTON UTILITIES
VISIO EXPRESS 4.0

HOW TO SUCCEED IN BUSINESS WITHOUT BUYING SOFTWARE.

Besides its formidable 200MHz Pentium processor, this Dell Dimension comes with a powerful package of business software** pre-loaded. Not games. Not fluff. Serious stuff like Microsoft Office for Windows 95. The 32-bit virus protection of Norton AntiVirus. The powerful file management features of Norton Navigator. The data protection and recovery tools of Norton Utilities. And all the diagramming tools of Visio Express 4.0. It also comes with built-in Dell reliability, built-in Dell value, and guaranteed next-business-day on-site△ service. So order today. It may be the fastest way to get ahead in business yet.

intel inside pentium PROCESSOR

DELL®

TO ORDER
800-232-5620
http://www.dell.com/buydell

Mon-Fri 7am-9pm CT • Sat 10am-6pm CT
Sun 12pm-5pm In Canada: call 800-232-6978

Keycode #03207